

Bob Cooper's

JANUARY 17 2005

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

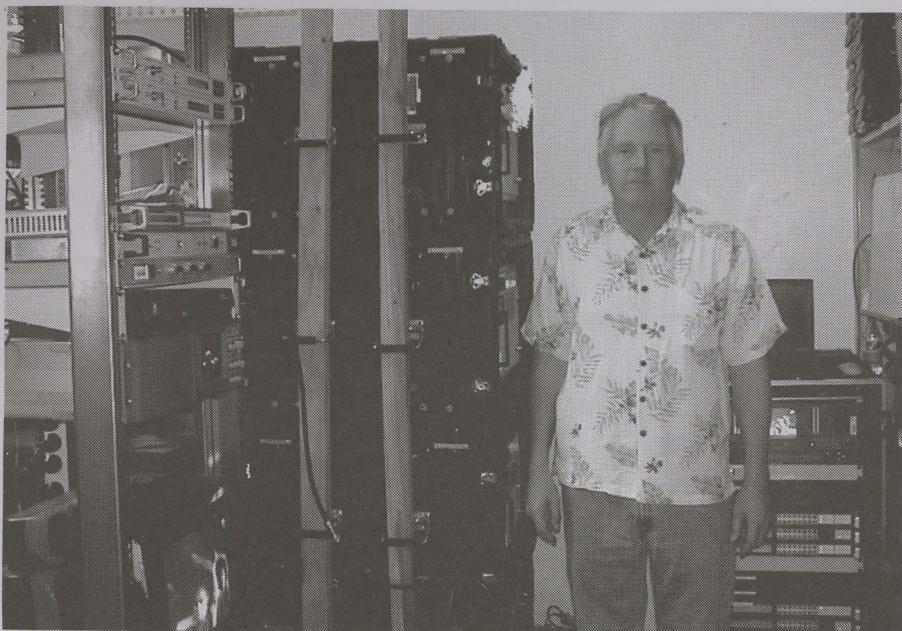
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Optus B3
parameters

Fiji is on:
How it happened
and more!

DISSECTING
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parameters

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- ✓ New FTA I701 French
- ✓ Observer Reports



Vol. 10 ♦ No. 125
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Specials this month

Magix 9800 - Digital Receiver



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- Universal LNB using DiSEqC
- Smart Code System (Soft Patch)
- User Friendly

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Satlook - Signal Meter



- Digital, Analogue and combined versions available
- A must for the professional
- Simple menus and functions

Price: Phone up for Quote

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- 4900 Channel Memory
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- User Friendly

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Everything? Yeah we got

LNB

- Zinwell C Band
- Zinwell KU Band
- MTI C Band, Superhigh gain
- One Cable Solution - CBand
- Dual Output KU 11300 MHz

Positioners

- Superjack EZ-2000
- Superjack DP-6600, DiSEqC 1.0/1.2
- Technosat DP-200, DiSEqC 1.2
- Manual Actuator Driver - EW101
- SAP 2000: 99 Memory positioner

Actuators

- Superjack HARL-3618, 18" Actuator
- Superjack HARL-3624, 24" Actuator
- Superjack DG-120, H/H Mount

Receivers

- SuperNET CA, Irdeto Embedded
- Success, Free-to-Air
- Dion DT-370, Free-to-Air Receiver
- Dion 2x CI, Hardware AllCAMed
- ChangHong, Mediaguard embedded
- SuperNET Terrestrial, DVB-T
- Phoenix High Definition STB

Dish and mounts

- 1.2, 1.8m Solid Prime focus
- 45, 60, 65, 85cm KU dish Offset
- 2.13m, 2.27m, 2.4m, 3.0m, 3.07m, 3.7m, Mesh Dish, Light and Heavy Duty PSI and JOYSAT Available

- CBand Wall brackets
- CBand Concrete mounts and stands
- KU Gutter mounts
- KU Wall mounts
- KU Float mounts
- KU Tinroof mount

Dion 818 CI - Digital Satellite Receiver



- Slim Size and User Friendly OSD
- 2x CI (Common Interface) slots
- Hardware AllCAMed

SuperJack H-H Actuator, DiSEqC embedded



- All it takes is one coaxial cable....
- NO MOTOR CABLE REQUIRED
- DiSEqC Positioner EMBEDDED!

Supernet - Terrestrial DVB-T



- Digital Terrestrial Receiver
- Slim Design
- High Quality Picture
- Easy to install and use

Magix 9200A - Digital Satellite Receiver



- FTA + Software Patched
- FAST BLINDSCAN TECHNOLOGY
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- 0/22kHz switches
- 2 and 4 way cable splitters
- V/H Multiswitch
- 0/12V Switch

Cable - 15m, 25m, 305m packs

- RG6-U Dual Shield Coaxial Cable
- RG6-U Quad Shield Coaxial Cable
- Cat5 Actuator Cable

Plugs

- F Connectors, Screw or Clamp types
- Cable joiners
- AV Splitters
- Cable Strippers
- Cable clamps
- Various other joiners and accessories e.g. RCA/SCART cables and converters

Misc

- 2.4GHz AV Sender
- Irdeto 2.06B CAMs
- Satlook Digital Signal Meter
- Satlook Analogue Signal Meter
- Satlook Digital + Analogue combo
- Satellite finders
- Angle level measure instrument
- High Quality Compasses



SatFACTS MONTHLY

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This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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our ELEVENTH year!

COOP'S COMMENT

Television trivia. What was the year that somebody created the very first "weekly TV programming guide?" Obviously before there can be a guide there must be television, so those with a sense of history will suggest 1936-1937 as that was when the BBC first began daily operation from their London Crystal Palace transmitter. Wrong.

The question here does not relate to "who was first to transmit television?" but rather it focuses on there being sufficient television to warrant the expense (and business risk) of creating a published guide in support of the programming.

"Television Weekly News" has a Volume 1, Number 1 front cover date of April 18, 1931. And inside, wonder of wonder, daily schedules for TV "stations" in Los Angeles, Chicago (2 stations!) and others scattered through the US. How can this be?

Fourteen years ago I began collecting material for a book which, at the time, I tentatively titled, "TELEVISION: The technology that changed our lives." My good wife Gay recently estimated there to be "more than a ton" (2,000 pounds) of "paper" stacked on shelves, bulging from boxes relating to this writing project. I can now see the light at the end of this 14 year tunnel and as the hundreds of thousands of words, boxes of yellowed photos, extracts from obscure 40-70 year old publications begin falling into a logical sequence, the book's title has matured to better reflect the thread that weaves through it all: "CHANGING CHANNELS: The pirates who took control of your television set" (tm). Pirates? In historical perspective, Winston Churchill was a "TV pirate." How and why? Read the book. So too Ted Turner. Fidel Castro? You bet! Charlie Ergen, the founder of America's DISH satellite service? Read the book. Rupert Murdoch? Some facts are obvious, even without historical perspective! Even his financial nemesis John Malone was a - yup.

There were thousands of "TV pirates" post 1931's introduction of a weekly TV guide, some made small "changes" to "your channels" while others had a major impact on what you see, when, where, and how much you pay to do so. "TV Piracy," it turns out, is a noble tradition actually predating television itself - welcome to the club.

In Volume 10 ♦ Number 125

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Dissecting Optus C1 -p. 8

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-On the cover-

His name is Jay Ayer and he came to Suva from Boston to assemble, test and make operational the temporary 4.5m C-band uplink for Sky Pacific. The 4.055 transponder was on the air December 17, the 4.095 on January 3. It is temporary, levels "could get better" when the permanent uplink (originally built for Ku) is on line (early March target date). See update p. 4 here. "Your hand carry limit has been breached, sir!" - p. 10



January 17, 2005



Radio Motion Picture Stage



LETTERS

NASA TV gone - again

"Can you find out why NASA-TV (I701, 3854RHC, Sr 2.000, 3/4) varies so much in signal level here in Eastern Australia? My 1.8m dish with dielectric feed insert creating RHC works fine for weeks and then the signal is gone for more weeks."

David M, NSW

Our measurements at SF indicates it does vary over a +/- 2 dB signal range here in northern NZ. A 1.8m even with a circular adapter, would be marginal in the best of times (+2 dB) so a very small decrease in their signal could create the loss you report. There are other factors. The low symbol rate (2.000) is a difficult one for many receivers; the (older) Hyundai brand models, for example, simply won't lock (work) properly at this low rate and there are others with the same problem. Getting the frequency exactly right (3854) and the polarity precise are steps required - even a 1 MHz offset (such as 3853 or 3855) can cause a weak signal to fail to lock.

Suggestion? Contact NASA (at public-inquiries@hq.nasa.gov) and complain; it may well be Intelsat, the satellite operator, that is causing the signal variation but it is NASA that is paying the bill and they have a right to expect stable footprints.

Tipped dishes

"My local (garbage) tip in middle NSW has always been a source for 60cm Austar dishes but recently 1.8m versions have also been showing up. I recently found (and brought home) a 1.8m 6 petal with Az-EI mount and a C-band scalar feed attached! I now make it a point to 'visit our tip' at least once each week!"

AI, NSW

One man's garbage is another man's treasure!

Dreambox errata?

"Is it possible that a Dreambox can be software (+ perhaps hardware) modified to accept a DVD burner drive? Could the integrated 'Compact Flash Interface Slot' be replaced with a DVD burner? It would be useful to be able to burn DVDs from the HDD."

IF, Queensland

OK Rolf - what is the answer? Is there something "better" on the horizon?

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

JANUARY 15, 2005

OPTUS testing wireless 3.4/3.5 GHz. You can "measure" the impact of a new service on an existing market by how fast the old guard rushes to the courts seeking "injunctions." Case in point - Optus hauled 3.5 GHz UNwired operation into Sydney court claiming false advertising when UNwired boasted in print, "surf anywhere." Optus told court UNwired, "does not have 100% coverage of Sydney," which of course is true, a point UNwired could have avoided by adding "(almost)" to their advertising. Now Optus is testing their own version of 3.5 GHz wireless in Sydney suburb Belmore using facility of UTStarcom (also the provider for New Zealand's "Whoosh!" 3.5 GHz technology). Optus claims they are "measuring capacity, range, reliability of the service to determine how many base stations are required for a commercial rollout," all of which they could do with a \$100 computer programme or by simply going to the UNwired web site.

Blue-Kiss "kiss-off?" Controversial adult service was moved from 3669Vt to 3673Vt AsiaSat 3S (105.5E), using reduced symbol rate of 6.666 (FEC 3/4) December 9; initial reported PIDs for Trace TV (FTA) V=2081, A=2082, SID 1; Blue Kiss CA V=49, A=52, SID 3; Blue Kiss Freeview (FTA) V=7201, A=7202, SID 8. Paul Burton (Waipu Cable TV, NZ) found original 3669 to be signal level 41%, signal quality 42% on straining 4m solid dish. Then - then it moved again (December 24, 1200 GMT), to 3760Hz, Sr 26.000, FEC 7/8 (ouch!). An announcement said, in part, "We sincerely regret having to remove Bluekiss Express from the Asiasat line up - pressure from our satellite provider who has received letters of complaint from a number of regulatory authorities within the satellite footprint." Those who had previously paid in advance are directed to info@bluekiss.tv where, they reported, "a possible extension on your monthly subscription" may be granted. Web site? <http://www.bluekiss.info/>

Battle of the languages? French telecasters in New Caledonia, Wallis-Futuna, Tahiti have banded together to counteract the introduction of English language Fiji-TV, using twin spot-beams on I701 Ku. Fiji's coverage is (much) larger, but French services (up to 6 TV, 3+ radio, al FTA) use smaller dishes, essentially duplicating Canal + I701 coverage into Australia (some say the new service is stronger). France plans CNN-competitive all news service as early as mid-year, in French of course. Details? Pages 27,32.

Comment on S 20 "Shortfall" (SF#124, p. 4, also p. 12). "Most recent brochure reads 'Symbol Rate 1.45 - 36 MS/s (1.0 to 42 typical).' Like many manufacturers, Unahohm prefers to err on the conservative side with product specifications. Final test of an instrument such as this is to see what it will do (at both low and high ends)." Memo from Peter Lacey, Laceys.tv.

Christopher Dibbell. Anyone have a current address???

Now is the time...



FOXTEL 
APPROVAL E10M31

...to equip yourself with a TV meter that you can count on.

A meter that measures Digital and Analogue TV properly, with better Data Logging, real time and more precise Spectrum measurements, that is better built and is easier to use.

Unaohm has almost 70 years of instrument manufacturing experience, and is committed to engineering Digital measurement systems that do it quickly, and thoroughly.

And now factory trained support is available in Australia

It's time to look at Unaohm EP300, from Lacey's tv

Faster truer BER for QPSK COFDM QAM.

Sole and exclusive Australian distributor:

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branches in Sydney, Ulverstone & Woolgoolga.
e-mail: info@laceys.ty www.laceys.ty

Truth: Low Noise LNB at Ku

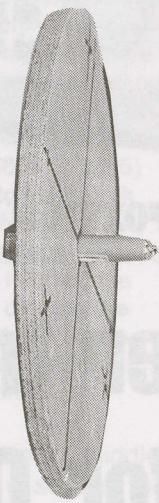
"We read with interest the articles describing low noise Ku LNB tests and the outcome of the tests indicating a 1996/1997 era Autosat Taiwanese built unit produced the best test results. Our thanks to Mr Sheng Lee for pointing out to readers the correct identification of the origin of this LNBf. This was our LK225 model, and we supplied them to the pay-TV market for more than a year. It is pleasing to note that virtually all remain in service, up to 8 years later, in a harsh Australian environment. Our current product line-up is equally good in performance and robust in long term use!"

Peter Carr, Autosat Australia

Aligning dish focal point

"I have not tried this but it should work. When you are trying to determine the positioning of a feed for a prime focus dish, one 'trick' is to have a hole in the centre of the dish reflector and look backwards through the (tiny) hole to the feed - adjusting the feed until the eyeball-hole-feed centre align. Many mounts preclude drilling a hole and then from the rear of the dish sighting through that mount to the feed. Try this: Using 4 ply (plywood) cut out the exact shape and size as the feed. Identify the centre of this piece and using a drill press carefully create a hole 1mm larger diameter than a Dick Smith (\$19.95) 'Key Ring Laser'. Mount the wooden feed substitute as you would a real feed, carefully slide the laser point into the hole being certain it is at 90 degree angle to the wooden substitute feed. As you slide the laser into the hole, the small slide-on button will 'slide-on' and the laser light spot will show you exactly where the feed as mounted locates the centre of the dish."

Paul Burton, Waipu Cable TV, NZ
Our 9-year old, Seth, was given one of these thumb-sized lasers by John Ramsey (Ramsey Electronics) several years ago, which he carries on his key chain. It is easily visible at distances of 400m+ which is pretty outstanding. It might even reach an airliner cockpit!



HARDWARE EQUIPMENT PARTS

UPDATE

JANUARY 15, 2005

Fiji C-band update. Fiji's second transponder (4.095 LHC, Sr 16.505, 3/4), scheduled to appear "anytime after 1 January," began transmitting on January 3. Initial reports say it is at "about the same level" as the original 4.055 LHC transponder, although January 3 measurements at SatFACTS found 4.055 lost 1 dB as 4.095 turned on, and, 4.095 initially -2 dB from 4.055; early days. A number of start-up problems (lip sync, audio levels) were addressed between Christmas and New Years. 500 Nagravision receivers, but only 50 C-band circular polarised feeds + antennas arrived in Fiji by air freight just ahead of Christmas, thousands more are "on the water" and expected at any time. The service's Nagravision (a V2 version) is scheduled to start around 1 February which will leave *only* Fiji-1 (on 4055) FTA. The fly-away uplink (see p. 10 here) will not be replaced with their own permanent uplink for at least another month - according to the present schedule. In the interim, there are some unresolved "uplink power level" questions (also see p. 10, here).

EMTV, PNG's national TV network owned by Australia 9-Network (Publishing and Broadcasting Limited), has been sold, to Fiji TV Limited, Suva; A\$2.1million. Deal to expand "coverage" of Fiji TV comes at same time Fiji has initiated satellite service. EMTV began service via satellite using Russian Rimsat satellite at 142.5E (1995), prior terrestrial service in 1987, moved to current PAS-8 (Vt) transponder (3808Vt) from interim As2 and converted to Scientific Atlanta PowerVu in 2001. EMTV was once favourite "FTA" service in Pacific, collects 38% of all PNG advertising expenditures, is widely promoted in PNG, including rural, outback locations. Fiji TV's plans for EMTV are to "leave it alone" for the time being, but Fiji does not rule out turning part of EMTV broadcast day into Suva originated programming fed through I701 service. Fiji TV reported F\$4.2 million in profits in 2003-4. There is one *winkle* here: Peter Sam, claiming to have been a co-founder of EMTV, believes he still owned 25% of the station even after PBL bought it. Now there is money on the table, he is threatening a court action to demand "his part" of the sale price from Fiji-TV.

NSS-5 (177W) remains confusing. New Skies Satellites still insisting any use of Ku band here is "temporary" and only "holding space" until Thailand-based two-way high speed iSTAR Internet is launched (that being the basis for Fiji's original NSS-5 Ku plan being voided). But new users keep-on-arriving. Latest: MAC-TV (Taiwan) which opted out of B3 Globecast for NSS-5 12.691 (or 692 depending upon your LNBf). MAC-TV web site (<http://www.mactv.com.tw/images/n-94.doc>) says this is a horizontal polarised for New Zealand but some Queensland observers swear it is vertical. MAC TV also scheduled on Measat 2 (11.602Hz) on beam routinely received in eastern Australia. The NSS-5 12.691 MUX is labelled "Best TV" and includes Taiwan/mainland based services.



Phoenix Technologies



Satellite Equipment & Accessories One Stop Supermarket

Phoenix JT3100T Digital Terrestrial Receiver

- Digital Audio Output (S/PDIF)
- Dolby Digital
- Wide Screen (16:9) Hot-Key
- S-VHS, CVBS & RGB Video Outputs

Magix 8800 Receiver
(Made in Korea)



\$220

NextWave 3220 FTA digital receiver
(Made in Korea)

C & Ku band input, PAL/NTSC auto converter
5000 channels Picture in picture EPG
DISEqC1.0/1.2 control
TV/VCR Scart & RCA outputs

\$160

- Super-Fast Channel Scan
- Electronic Program Guide
- Channel Rename Function
- Software Upgradeable

\$180/each (for 6 unit)
\$160/each (for 30 units)

Coship digital receiver
(Iredto V.09 CAM embedded)

\$220

SPACE 5300A CI Receiver
(Two Common Interface Slots)

Auto PID correction
C & Ku band input
PAL/NTSC auto converter
5000 channels
Picture in picture EPG
DISEqC1.0/1.2 control
TV/VCR Scart & RCA output

\$180

NextWave 3220C digital receiver
(Two common interface slots) (Made in Korea)

C & Ku band input
High symbol rate >45,000
PAL/NTSC auto converter
5000 channels Picture in picture EPG
DISEqC1.0/1.2 control
TV/VCR Scart & RCA outputs

\$220

Optus C1 Aurora Kit

Coship digital receiver

(Iredto cam embedded)
11.3 GHz/Universal Ku
LNB, 75cm dish, Mount
bracket.

\$315/set

+Aurora card \$75

LBC, ART, AI Jazeera Kit
Coship digital receiver

(Iredto cam embedded)
C-band LNB, 2.3m
Mesh dish.

\$435/set

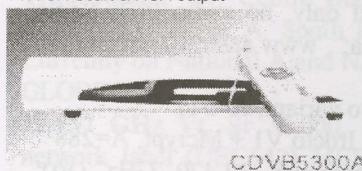
+Subscription fee

\$20/month*

Free to air kit (for NSS 6, Optus B3)

Including dish, LNB, digital receiver, etc.

Start from \$250/set



CDVB5300A

SPACE 2300 digital receiver

Auto PID correction
C & Ku band input
PAL/NTSC auto converter
5000 channels
Picture in picture EPG
DISEqC1.0/1.2 control
TV/VCR Scart & RCA output

\$140

Irdeto 2.06B CAM	\$140	Zinwell C band LNB	\$35
Viaccess CAM	\$140	Zinwell 10.70/11.3	\$25
65cm offset dish	\$27	/Universal Ku band LNB	
75cm offset dish	\$40	MTI C band LNB	\$35
Superjack DISEqC 1.2 motor	\$95	One cable solution C-band LNB	\$50
Universal Mount	\$15	Satellite finder	\$30
2.1m mesh dish	\$120	Silver Card (10/bag)	\$125
2.3m mesh dish (motorized)	\$170	Gold Card (10/bag)	\$85
2.4m heavy duty mesh dish (motorized)	\$210	RG6 Stripper	\$20
1.8m 6 panel dish	\$130	RG6/11 Crimper	\$30
RG 6 Dual cable (305m/roll)	\$75	Angle meter (made in USA)	\$85
		Compass	\$30

Changhong 1000 Digital Receiver
Aston 1.05 Cam embedded

Best Value For Indian & French
(C-band on Asiasat 3s & Ku band on Intelsat 701)

\$170

C & Ku band input, 2000 Channels.

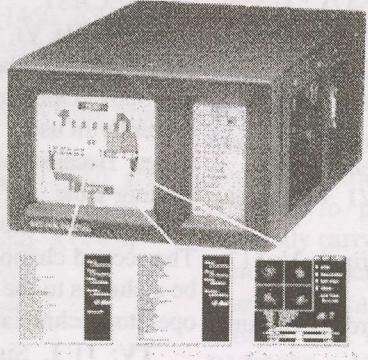
(Top quality) TESTING EQUIPMENT SPECIAL (made in Sweden)

Satlook MARK III \$950

- 4.5" B/W monitor for PAL/NTSC/SECAM
- Satellite-receiver 920-2150 MHz
- Tunable sound 5.5-8.5 MHz
- Spectrum analyzer
- Expanded spectrum
- LNB voltage 13/18 V
- 22 kHz tone switch
- KU- and C-band (normal/inverted video)
- Built in rechargeable battery
- Only 3.5 kg complete with carrying-case

Satlook Digital NIT \$1550

We are pleased to introduce our new SATLOOK Digital NIT. NIT stands for NETWORK INFORMATION TABLE, which today almost all DVB-satellites transmit as standard. The NIT contains information about the Satellite and TV/Radio-channels. It's very easy to identify a Satellite when reading out this information. The different TV/Radio-channels on a transponder can also be read-out.



Satlook COMBO \$2550

- Input frequency: 2-900 MHz and 920-2150 MHz
- 4.5" B/W Monitor for PAL/NTSC/SECAM
- Lots of memory positions for spectrum pictures
- RS232 for PC-connection
- Built in, rechargeable battery. Only 7kg complete with carrying case
- TV-PART:**
 - 2-900 MHz spectrum analyzer
 - Presents full range spectrum (and expanded)
 - Very high accuracy, ±1dB (at 20°C)
- SAT-part:**
 - 920-2150MHz spectrum analyzer. Digital BER, QPSK and S/N-ratio
 - Satellite-ID and TV/Radio-channel info (NIT)
 - Tunable audio bandwidth 5.5-8.5MHz
 - LNB voltage 13/18V, 22kHz tone switch
 - DISEqC according to level 1.0, 1.1, 1.2
 - KU- and C-band (normal/inverted video)

Full range of C/Ku band satellite dish - panel & mesh, prime & offset, from 45cm to 4.5m

Full range of Zinwell, MTI C/Ku LNB - Dual output, one cable solution, C/Ku combination

Full range of actuator - From 12" light to 36" heavy duty

DiSEqC 1.2 Positioner & SupperJack EZ2000 Positioner

2.4 GHz AV sender and Remote extender

RG6 Cable and Motor cable

Full range of satellite accessories



THIS MONTH SPECIAL



SPACE 2300A FTA Digital Receiver \$1300/(10 units)
Magix 8800 Digital Receiver \$1200/(6 units)

Phoenix 2.3m Mesh dish \$1650/(pallet of 10 sets)
Zinwell LNB 15K C-band LNB \$648/(box of 24 units)

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More technical information that you need?

Dissecting Optus B3 Transponders

What follows is a painstakingly detailed analysis of the status of B3 transponders as of early January. There is FAR more to the transponders than normal listings provide and

frankly without a Nokia DVB2000 loaded IRD, much of what follows would not be available here. Research provided by "IF" in Queensland.

Optus B3/152E launched 1994. Carries 15 Ku transponders (8 vertical, 7 horizontal; all 54 MHz width) covering 12.250-12.750 GHz. Suitable LO: 11.300 = 950>1450 L-band IF

Transponder T1: Centre frequency 12.282(Vt); available footprints National A, South East, New Zealand. Currently on National A, carrying:

12.260 GHz Vt - SCPC of about 6 Msym, not MPEG2 (this appears to be SCPC moved from T14 when UBI started there). Remainder of T1 filled with numerous narrow band (data) SCPCs.

Transponder T2: Centre frequency 12.344(Vt); available footprints National A, South East and New Zealand. Currently on National A, carrying:

12.344 GHz Vt, Sr 30.000, 3/4 (Internet data)

Transponder T3: Centre frequency 12.407(Vt); available footprints National A, South East, New Zealand. Currently on National A and NZ (power sharing), carrying:

12.407 GHz Vt, Sr 30.000, 2/3 (Aurora Business).

Notes: On some receivers this transponder will network load as the fourth, combined with the three Aurora transponders currently on Optus C1. Network label (UEC642) "Aurora Optus B3" while network label on DVB2000 "OPT," network ID 0069, TP ID 0021, operator Optus Com.

40 channels (20TV, 20 radio) with 11 TV, 8 radio in use.

TV: 1) Tune 152E, FTA, V=64, A=65.

2) CLK (Centrelink), Irdeto V1 + Mcrypt, V=80, A=81

6) BTV3 (Optus Business TV3), Irdeto V1 + Mcrypt, V=96, A=97

7) SKY1 (normal TV ch), SKY's Irdeto variant, V=512, A=513, T=528

8) SKY2 (TV + NSW TABradio), SKY's Irdeto variant, V=512, A=515, T=528

9) SKY3 (TV + VIC TABdata), SKY's Irdeto variant, V=512, A=513, T=528, D=529

10) SKY4 (TV + WA TABradio), SKY's Irdeto variant, V=512, A=516, T=528

11) SKY5 (TV + Sat comms audio), SKY's Irdeto variant, V=512, A=514, T=528

12) SKY6 (TV + NSW TABdata), SKY's Irdeto variant, V=512, A=513, T=528, D=530

13) SKY7 (VIC TAB data), SKY's Irdeto variant, A=518, D=529

14) SKY8 (PPV TV), SKY's Irdeto variant, V=544, A=545, T=560

Radio: 1) Retail R1 (Australasian Retail Radio Network, SuperCheap Auto Radio), Irdeto V1 + Mcrypt, A=257

2) SPORT 927 (Satellite Music Australia), Irdeto V1 + Mcrypt, A=256

3) Retail R2 (Kmart), Irdeto V1 + Mcrypt, A=258

4) Retail R3 (Kmart garden centres), Irdeto V1 + Mcrypt, A=259

5) Retail R4 (Kmart NZ), Irdeto V1 + Mcrypt, A=260

6) A-A R1 (currently label only, no audio PID; Radio Akashwani -Voice of India; www.austral-asiacomunication.com)

7) SKY Radio 1, SKY's Irdeto variant, A=517

10) QTAB (Qld TAB radio), Irdeto V1 + Mcrypt, A=288

Transponder T4: Centre frequency 12.470 GHz (Vt); available footprints National A, South East and New Zealand. Currently on National A and NZ (power sharing), carrying:

12.492V (approximate), weak non-MPEG-2 SCPC, Sr approx. 6 Msym.

Transponder T5: Centre frequency 12.532(Vt); available footprints National A, South East and New Zealand. Currently on National A and NZ (power sharing), carrying: GLOBECAST.

12.525 GHz Vt, Sr 30.000, 2/3 (network label (UEC642) - none; network label DVB2000 - none; network ID: 0001, TP ID: 0002; Operator: SES. 21 channels (13TV, 8 radio), all currently in use.

Notes: Because of (uplink operator induced) errors in the loading table, not all receivers will load what follows in the order given. Following list from DVB2000 in a Nokia IRD. The second channel listed is the SID (service ID) which may be a clue as to the loading order (sequence) which the uplink operator technician intended.

TV: 1) 1. Sigaram TV (Indian payTV from Sydney), Mcrypt, V=1160, A=1120.

2) 9. Ad Hoc (occ feeds) usually FTA, V=1360, A=1320

3) 3. ERT (Greek service also on UBI), FTA, V=1860, A=1820

4) 4. TGN (Thailand) FTA, V=1460, A=1420

5) 11. 3ABN (USA religious) FTA, V=2160, A=2120

6) 10. Daystar (USA religious) FTA, V=2060, A=2020

7) 12. Oman TV (Arabic) FTA, V=2260, A=2220

8) 14. Abu Dhabi (Arabic) FTA, V=2460, A=2420

9) 8. Sun TV (Indian payTV) Mcrypt, V=1660, A=1620

10) 2. Sigaram 2 (Indian movies) Mcrypt, V=2360, A=2320

11) 15. Kurdsat (Kurdistan) FTA, V=2081, A=2082

12) 22. Hope Channel (USA religious) FTA, V=2161, A=2122

13) 13. AssyriaSat (USA Iraqi) FTA, V=2560, A=2520

Radio: 1) 7. Bangkok FM94 (Thailand) FTA, A=1422

2) 6. Radio Greece (Greece) FTA, A=1822

T5/12.525V-radio continued

- 3) 5. 3ABN Radio (USA religious) FTA, A=2121
- 4) 16. ATBC Tamil (Indian radio) FTA, A=1121
- 5) 17. Emirates FM (Arabic) FTA, A=2421
- 6) 18. Oman Radio (Arabic) FTA, A=2422
- 7) 19. Suryan FM, Mcrypt, A=1622
- 8) 20. NTC (Australian feed, country music) FTA, A=2093

Transponder T5 also occasionally carries a Globecast SCPC feed, typically between 12.550V and 12.555V. The symbol rate is usually either 6.666 or 6.110; FEC typically 3/4 but on rare occasions is 2/3 (possibly when feed is intended for NZ). Most such feeds are FTA, when CA it is NTL encrypted.

Transponder T6: Centre frequency 12.594(Vt); available footprints National A, South East, WA and New Zealand. Currently on National A and NZ (power sharing), carrying: 12.594 GHz Vt: Sr 30,000, 2/3 (Internet data).

Transponder T7: Centre frequency 12.657(Vt); available footprints National A, South East, WA and New Zealand. Currently on National A and NZ (power sharing), carrying: GLOBECAST.

12.657 GHz Vt, Sr 30.000, 2/3 (first Globecast on B3); network label (UEC642) MEDIASAT MCPC, (DVB2000) OP, Network ID 0001, TP ID 0001, Operator: SES. 29 channels (14 TV, 15 radio, all in use). This transponder uniquely carries Mcrypt and PowerVu encryption. In channel list to follow, the CA channels are Mcrypt but some may also be simulcrypt in PowerVu.

TV: 1) Vision Asia 1/SET-Asia (Sony Entertainment TV) CA V=1160, A=1120

2) Vision Asia 2 (Zee TV) CA, V=1260, A=1220

3) Vision Asia 3 (Zee Cinema) CA, V=1360, A=1320

4) Vision Asia 4 (Star Plus India) CA, V=1460, A=1420

5) TRT Int (Turkey; also on UBI) FTA, V=1860, A=1820

6) Trinity (USA religious) FTA, V=1660, A=1620

7) AMTV (Australian multicultural; currently long promo only) FTA, V=1760, A=1720

8) JCTV (USA religious-youth oriented TBN) FTA, V=1861, A=1824

9) Picture of Croatia (Croatia) FTA, V=1960, A=1920

10) TV Korea (Korea) CA, V=1061, A=1024

11) MAC TV (Taiwan) FTA, V=501, A=540

12) Duna TV CA, V=502, A=550

13) BVN (Netherlands) FTA, V=503, A=560

14) Church TV (USA religious) FTA, V=504, A=570

Radio: 1) Raw FM (Australian feed) FTA, A=1722

2) TRT FM (Turkey, also on UBI) FTA, A=1822

3) VOT (Voice of Turkey) FTA, A=1222

4) ABS Radio (Arabic) FTA, A=1122

5) Tamil Radio (Indian) FTA, A=1322

6) SNG IFB (audio backfeed for remote broadcasts) FTA, A=1422

7) DMX Music (in store music feed) CA, A=1622

8) Kossuth Radio, FTA, A=552

9) RNW3 (Netherlands) FTA, A=562

10) RNW1 (Netherlands) FTA, A=1026

11) RNW2 (Netherlands) FTA, A=542

12) RVI-2, FTA, A=1323

13) Voice of Croatia (Croatia) FTA, A=1922

14) Overcomer Radio (USA religious) FTA, A=1123

15) Vietnamese Radio, FTA, A=1223

Transponder T8: Centre frequency 12.720 (Vt); available footprints National A, South East, WA and New Zealand. Currently on WA (speculation, not verified), carrying:

Unverified: 12.702 GHz Vt, Sr 14.300, 7/8 WA ABC feed (1 TV, 1 radio) FTA; 12.720 GHz Vt, Sr 12.600, 5/6 WA SBS feed (4 TV, 2 radio) FTA; 12.738 GHz Vt, Sr 14.300, 7/8 GWN/WIN feed CA (2 TV).

Transponder T9: Centre frequency 12.314 (Hz); available footprints High Performance (as used previously by payTV) and National B. Currently on (unverified) National B, carrying several weak SCPCs (requires 3m or larger dish).

Transponder T10: Centre frequency 12.376 (Hz); available footprints High Performance and National B. Currently on National B (not verified), carrying:

12.376 GHz Hz, Sr in range of 6.000, SCPC which is not MPEG-2.

Transponder T11: Centre frequency 12.438 (Hz); available footprints High Performance, National B and North East. Currently on (unverified) National B, carrying: This transponder currently in use for occasional feeds. Recent observations include: 12.425H, Sr approx 20 Msym, but not MPEG-2; 12.445H, Sr 6.666, 3/4 - V8 racing Net 10 and Globecast feeds (FTA); 12.452H, SR 6.666, 3/4 - V8 racing BigPond, FTA and (NTL) CA.

Transponder T12: Centre frequency 12.501 (Hz); available footprints High Performance, National B, Central Australia. Currently on (unverified) National B, carrying: At the transponder centre of 12.501, there is a MCPC of approximately 30 Msym which is not MPEG-2. This transponder has previously been used for a feed MCPC for Globecast which had been moved to the inclined orbit A3 satellite. This non-MPEG-2 MCPC may be that feed, returned to B3.

Transponder 13: Centre frequency 12.564 (Hz); available footprints High Performance, National B. This transponder *does not appear to be in use* (early January 2005).

Transponder 14: Centre frequency 12.626 (Hz); available footprints High Performance, National B, North East and Central Australia. Currently on High Performance (similar coverage to pay-TV when this satellite was at 156E). Currently carrying: UBI (United Broadcasting International) which is present version of financially failed TARBS. This transponder carries the third and fourth MCPCs in the UBI network load sequence. Network label: (on UEC 642 and DVB2000) UBI. Operator: SES. Note: CA channels are MDS (same as failed TARBS).

T14/lower: 12.613 (Hz), Sr 22.500, 3/4. Network ID: 0003, TS ID: 0003. 29 channels (11 TV, 13 radio, 5 data) but as of early January 2005, radio and data not in use.

TV: (second number is network channel):

1) 23. KDTV (Turkish, Kanal D), CA, V=512, A=640

2) 24. ATV (Turkish, Ankara TV), CA, V=513, A=641

3) 25. KAN7 (Turkish, Kanal 7), CA, V=514, A=642

4) 26. SHOW (Turkish, "Show TV"), CA, V=515, A=643

5) 27. NTV (Turkish news channel), CA, V=516, A=644

6) 28. LIG (Turkish, futbol), CA, V=517, A=645

7) 29. MAD (Greek, music TV), FTA, V=518, A=646

8) 30. ERT (Greek, also on Globecast), FTA, V=519, A=647

9) CH31. (UBI promo), FTA, V=520, A=648

10) CH32. (UBI promo), FTA, V=521, A=649

11) MKT1 (Macedonia, MTB MKTVsat), FTA, V=522,

T14/12.613H - TV, continued

A=650

T14/upper 12.640 (Hz), Sr 22.500, 3/4. Network ID: 0004, TS ID: 0004. 29 channels (11 TVF, 13 radio, 5 data) but as of early January 2005, radio and data not in use.

TV (second number is network channel):

- 1) 34. BNTV (Serbian, RTV BN) FTA, V=512, A=640
- 2) 35. CH 35 (UBI promo) FTA, V=513, A=641
- 3) 36. BKTV (Serbian) FTA, V=514, A=642
- 4) 37. PINK (Serbian-PinkPlus) FTA, V=515, A=643
- 5) 38. TVE (Spain) FTA, V=516, A=644
- 6) 39. TVC (Chile-Spanish) FTA, V=517, A=645 (UBI card: "Technical difficulties")
- 7) 40. CH40 (UBI promo) FTA, V=518, A=646
- 8) 41. CH41 (UBI promo) FTA, V=519, A=647
- 9) 42. CH42 (Russian, MOCKBA TV) FTA, V=520, A=648
- 10) 32. CH43 (Russian, InterPlus TV) FTA, V=521, A=649
- 11) 33. CH44 (Russian, Channel One Russia) FTA, V=522, A=650

T15/lower 12.674 (Hz), Sr 22.500, 3/4. Network ID: 0001, TS ID: 0001. 29 channels (11 TV, 13 radio, 5 data), one radio in use, no data in use.

TV: (second number is network channel):

- 1) 1. ESC1 (Arabic/Egyptian) CA, V=512, A=640
- 2) 2. CH2 ([possibly] UBI promo) CA, V=513, A=641
- 3) 3. NWER (Arabic, Al Mehwer) CA, V=514, A=642
- 4) 4. NDM (Arabic, Nile Drama) CA, V=515, A=643
- 5) 5. NVAR (Arabic, Nile Variety) CA, V=516, A=644

6) 6. TLIB (Arabic & French, Tele-Liban) CA, V=517, A=645

7) 7. KTV (Kurdish, Kurdistan TV) CA, V=518, A=646

8) 8. HEYA (Arabic) CA, V=519, A=647

9) 9. NEWT (Arabic, NewSat TV) CA, V=520, A=648

10) 10. TVS (Arabic, Syria Sat) CA, V=521, A=649

11) 11. ALMJ (Arabic, Al Majd) CA, V=523, A=651 (yes - unusual PIDs)

Radio: TRT-FM (Turkey, also on Globecast), FTA, A=660

T15/upper: 12.701 (Hz), Sr 22.500, 3/4. Network ID: 0002, TS ID: 0002. 29 channels (11 TV, 13 radio, 5 data - radio and data not in use).

TV: (second number is network channel):

- 1) 12. NAJM (Arabic, Nojoom music TV) CA, V=512, A=640
- 2) 13. ARAB (Arabic, news channel) CA, V=513, A=641
- 3) 14. INFY (Arabic, Infinity TV) CA, V=514, A=642
- 4) 15. MBC (Arabic) CA, V=515, A=643
- 5) 16. MAZZ (Arabic, Mazzika Music TV) CA, V=516, A=644
- 6) 17. ALSH (Arabic, Al Shasha) CA, V=517, A=645
- 7) 18. CH18 (UBI promo) FTA, V=518, A=646
- 8) 19. CH19 ([possibly] UBI promo) CA, V=519, A=647
- 9) 20. CH20 (English UBI promo channel) FTA, V=520, A=648
- 10) 21. CH21 (Turkish, STV) CA, V=521, A=649
- 11) 22. TRTI (Turkey, also on Globecast FTA) FTA, V=523, A=651 (yes - unusual PIDs).

Dissecting Optus C1 Transponders

Optus C1/156E launched 2003. Carries 24 Ku transponders (10 vertical, 14 horizontal). Four East Asia (72 MHz bandwidth, horizontal) transponders are not in use. The other 20 are in use on footprints which cover Australia (8 x 36 MHz vertical, 2 x 72 MHz vertical, 8 x 36 MHz horizontal and 2 x 72 MHz horizontal). One vertical transponder has a footprint that currently covers New Zealand while the other 9 vertical are on a footprint with a "side spotbeam" reaching Hawaii. The spectrum is 12.250-12.750; suitable LNB LO = 11.300.

Transponder T1: Centre frequency 12.305 (Vt); 72 MHz width. Available footprints, NA and NANZ. Currently on NA, carrying: Two MCPCs.

T1/Lower: 12.288(Vt), Sr 28.642, 1/2. Currently no loading table, possibly to become Lockridge WA uplinked Aurora MCPC.

T1/Upper: 12.324(Vt), Sr 24.450, 1/2. This MCPC will replace Aurora's T10 on 1 February (2005). There are currently 29 channels (10TV, 29 radio) of which 21 (4TV, 17 radio) are in use. Currently, no SDT (Service ID Table) and some receivers cannot load these channels. The CAT (CA table) is empty (originally it carried Irdeto V1 and Mcrypt) so at this time all channels are FTA (missing numbers are spares - not in use).

TV: 1) ABC SA TV, V=816, A=817, T=818

4) ABC Q TV, V=784, A=785, T=786

7) ABC NT TV, V=832, A=833, T=834

10) ABC SE TV, V=768, A=769, T=770

Radio: 1) ABC SE RR, A=774

2) ABC SA FM, A=820

3) ABC SA RN, A=821

4) ABC SA RR, A=822

5) ABC NT FM, A=836

6) ABC NT RN, A=837

7) ABC NT RR, A=838

8) ABC Q FM, A=788

9) ABC Q RN, A=789

10) ABC Q RR, A=790

11) ABC AS RR (Alice Springs), A=839

13) ABC JJJ, A=775

14) ABC PNN, A=776

15) ABC NQ R, A=791

17) ABC V RR, A=777

18) ABC SE FM, A=772

19) ABC SE RN, A=773

Transponder T2: Centre frequency 12.367 (Vt); 36 MHz width. Available footprints, NA and NANZ. Currently on NA. Encryption Irdeto V1, Mcrypt, NDS. On 12.367(Vt), Sr 27.800, 3/4, 13 channels (10 TV, 3 radio), CA except those labelled FTA.

TV: 1) SBS News, V=1011, A=1012, T=1016

2) SBS (NSW), V=1021, A=1022, T=1026

3) SBS (WA), V=1031, A=1032, T=1036

4) gc1, V=1071, A=1072 (FTA - test bars)

5) gc2, V=1081, A=1082 (FTA - test bars)

C1 text continues page 22, here

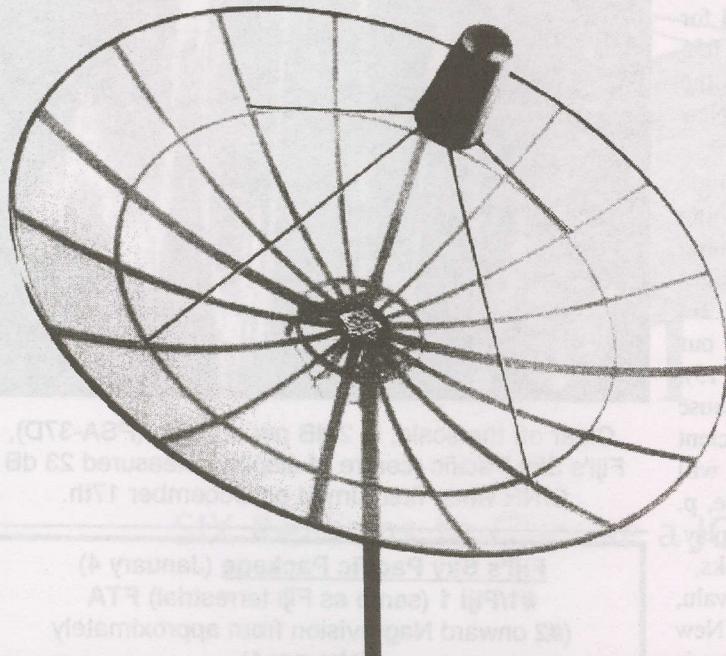


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Initially - more signal than Intelsat expected!

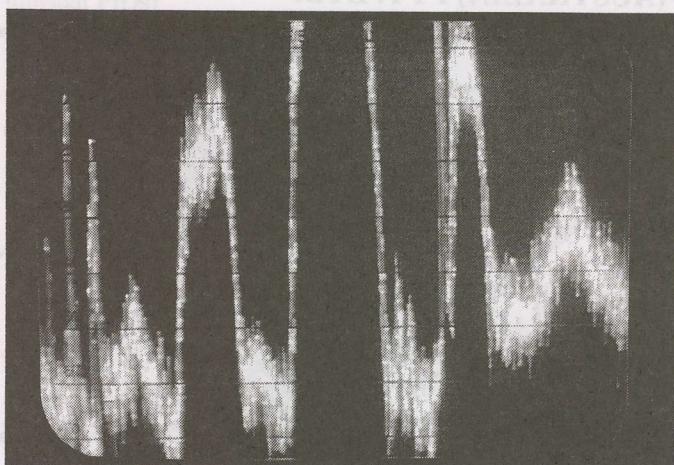
Fiji's Turn-On makes life exciting for many

Friday December 17, 2004 - just after 12 noon Fiji time (Sydney + 1), a fly-away (transportable) 4.5m dish was connected to two racks of 6 GHz uplink equipment and for the first time Fly-Away engineer Jay Ayer had Fiji TV's 4.055 GHz left hand circular (LHC) uplink on the air. Within the first hour, reports from Australia, Cook Islands, New Zealand.

Fiji's service until early January was limited to the single transponder (#9) on Intelsat I701, 180E, using something called "Spot Beam B." The anticipated signal level, assuming Intelsat had correctly "pointed" the beam with a boresight centre on Fiji, was to be 38.7 dBw; the equivalent of a 1.2m dish producing around 9dB of carrier to noise. As our previously published footprint map forecast (SF#123, p. 15), the C-band "spot beam" covers a truly large area, and because it is C and not Ku, even well off boresight there is sufficient signal that an ambitious viewer with a 3 to 4.5m dish will find adequate signal for high quality reception (see table, p. 12). The intent, of course, is for "small dishes" to play, primarily in the core markets of American Samoa, Cooks, (the) Gilbert Islands, Nauru, Tokelau, Tonga, Tuvalu, Western Samoa, and of course Fiji. Unmentioned are New Caledonia and Vanuatu - where the primary language is French although English speaking residents certainly represent a potential "sub" market for Fiji TV's "Sky Pacific" 11/12 channel package. On January 1, Intelsat turned over a second transponder (4.095 GHz, #10) which first had to be "cleared" of previously existing traffic (RFO-Canal + on 4.086 LHC; moved to I701, 180E). Each of the two LHC transponders will ultimately carry 6 TV channels (see list to right) and as many as five (stereo) radio channels.

New Zealand, and as far inland into eastern Australia as the spot beam reaches, are not considered "core" markets (although many in NZ report glitch free reception on dishes as small as 1.2m). Likewise, cable systems in PNG and

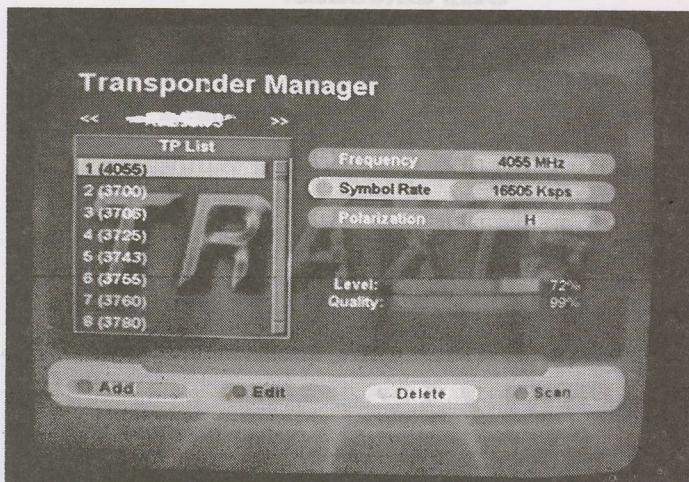
The parameters (left). 4.055 (LHC; 4.095 second transponder), Sr 16.505, FEC 2/3 (on DMS International ST3688 receiver; note quality 99%!). "The Bear," ABC A-P's children's programming, on (to remain) FTA "Fiji-1." Some (ABC) programmes are moved right and up to make room for local scrolling advertising; unusual!



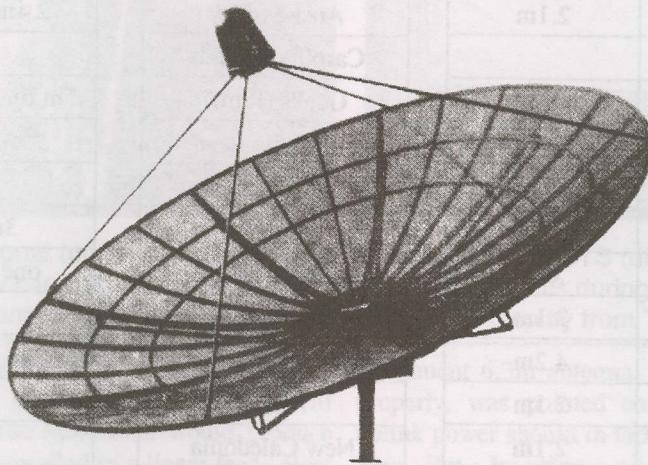
Clear off the scale; in 2 dB per division (PSA-37D), Fiji's Sky Pacific (centre of display) measured 23 dB C/NR when first turned on December 17th.

Fiji's Sky Pacific Package (January 4)

- #1/Fiji 1 (same as Fiji terrestrial) FTA
- #2 onward Nagravision from approximately February 1
 - #2/ Nick (Singapore feed)
 - #3/ Cartoons (Singapore toons)
 - #4/ MTV (Singapore MTV)
 - #5/ ABC A-P (PAS-8 service)
 - #6/ CNN (same as NZ, Australia)
 - #7/ Discovery (feed uncertain)
 - #8/ Turner Classic Movies (same feed as Oz)
 - #9/ E! (same feed as NZ-Oz)
 - #10/ Bollywood (Hindi)
- #11/ Premium (to be sports, English movies)
- #12/ PPV (event based and priced; colour bar, tone) may be FTA bars through February with "super"



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The PROOF is in the results - what our observers have found

Forecast LHC	Actual LHC	Actual Linear
2.4m	1.8m	2.3m
2.7m	1.8m	2.1m
2.4m	1.8m	2.1m
5m	unknown	
1.5m	1.5m	2.1
1.2m	<1.2m	<1.8m
1.2m	<1.2m	<1.8m
8m	unknown	
5m	4.8m	6m
1.5m	1.5m	2.1m
3.7m	3.1m	4.2m
1.5m	1.5m	2.1m
1.5m	1.5m	2.1m
1.5m	1.2m	1.8m
1.5m	1.2m	1.8m
1.5m	1.2m	1.8m
2.1m	1.5m	2.1m
2.8m	2.8m	3.7m
1.2m	1.2m	1.8m
1.2m	1.5m	2.1m
1.8m	2.4m	3m
1.2m	1.2m	1.8m
1.2m	1.2m	1.8m
1.5m	1.5m	2m
11m	unknown	

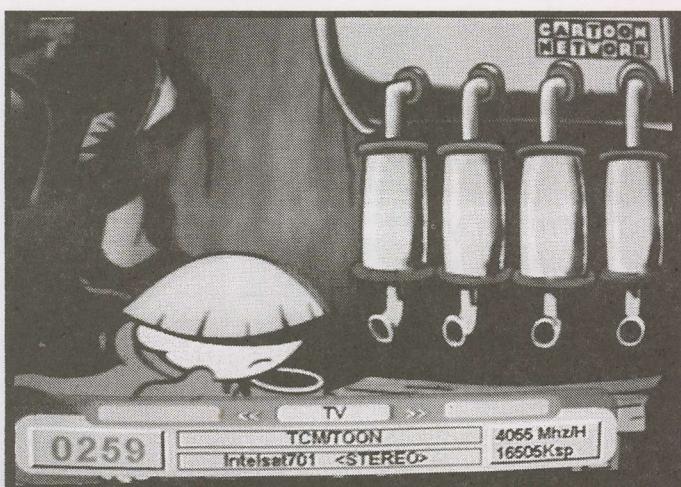
Location
Aust-Brisbane
Aust-Melbourne
Aust-Sydney
Caroline Islands
Cooks (Raro)
Fiji - Vita Levu
Fiji - Vanua Levu
Guam
Hawaii-Honolulu
Kirabati - Tarawa
Marshalls-Enewetak
Nauru
New Caledonia
Niue
Norfolk
NZ-Auckland
NZ-Invercargill
PNG-Pt Moresby
Samoa-Apia
(Amer.) Samoa
Solomon-Honaira
Tonga-Nukualofa
Tuvalu-Funafuti
Vanuatu-Port Vila
USA-San Diego

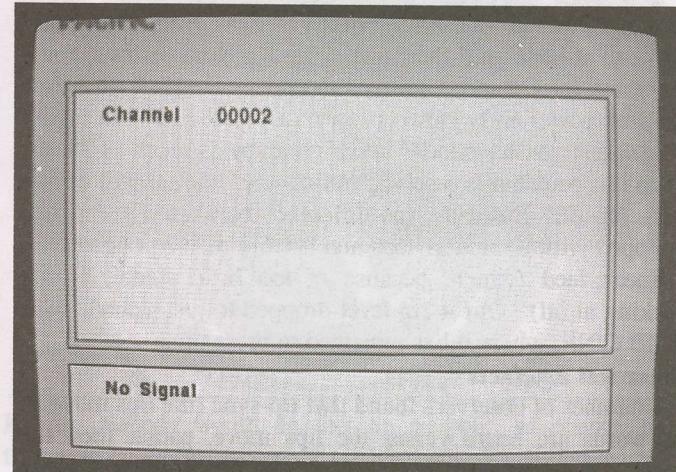
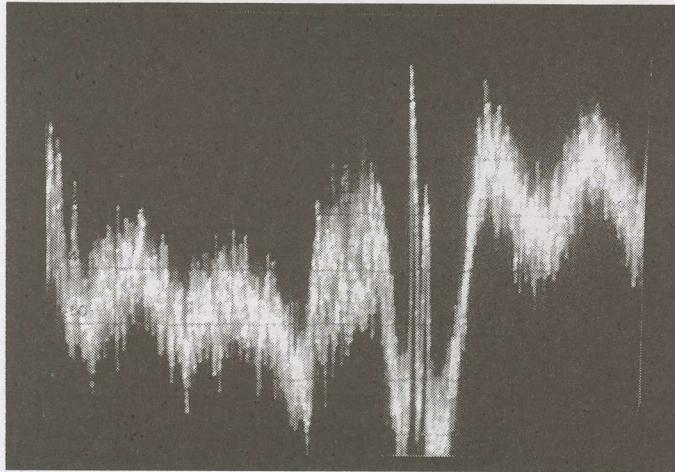
Errata information
2.4m 70% LHC Mackay
2.4m linear test 9 dB C/NR
no reports
5m linear tests - "overpowering"
tests ongoing
tests ongoing
3m solid unsuccessful
one report; 3.7m pixelates
7m test 14+ dB over noise
tests with 2.3m
from 1.2m LHC upward - VG
2m - VG
3m test linear pixelates badly
more measurements suggested
more measurements suggested
more reports requested
2.4m linear test - VG
initial test unsuccessful

Note: Measurement reports made prior to January 3rd turn-on of second (4.095) transponder; see p. 4

Guam, and slightly larger private dishes in the Solomon group (2.4m) should play very well. But there are some cautions here - which some who have tried to locate the signal have failed to respect.

Cartoon Net is "scaled down" version; tamer, less violence, more like "Boomerang." MTV follows similar format, includes many middle-of-the-road (MOR) music videos and few "envelope-pushing" groups (Janet Jackson!).





Cross pole; 4 to 5 dB of signal (none is the objective) measured at SatFACTS (digital carrier just left of centre, adjacent to [at right] narrow band signal). At right, "early days" - sometimes during testing input to Fiji TV was off from one or more programming sources resulting in this display from Tanberg receivers.

One: This is a circular polarised signal. A standard linear feed (i.e. vertical, horizontal, switching at the LNB) will typically be -3dB from what the same dish would produce with a circular feed or adapter installed in a linear feed. How much is -3dB? If the dish size required with a circular feed is 1.2m, by using a standard linear feed LNB(f) the minimum dish size becomes 1.6m. Bottom line? Start with the incorrect feed and you will have to use a larger dish. And you will, even with a linear feed, have to go through a feed-rotating (turning the full feed plus LNB) to peak the signal; it is unlikely to be peaked when you simply point at 180E and turn the receiver on!

Two: If you are using a linear feed, and a dish larger than required with a circular feed, try both the "V" (14 volt) and "H" (18V) receiver LNB settings. One will work better than the other. Select the one that works best (highest signal level, best video "Q" [quality]) and then staying with that one carefully rotate the entire feed + LNB assembly until the level and quality are peaked on your receiver.

Three: A circular feed is expensive and self-limiting (it does not do linear very well) but a linear feed can be adapted to circular by inserting a small piece of "plastic" (fibreglass is superior - G10 Teflon circuit board is the best) into the "throat" of the feed. We explain how to do this, and the side effects, on p. 15 here.

The tests

If you tune in Fiji TV right now, what you see is a temporary uplink (supplied and paid for by NSS) using a 4.5m dish which came to Fiji as air freight from the Greek Olympics via a storage period in Sydney. Jay Ayer, the Boston (USA) based engineer, working for Transvision, met it in Suva and spent ten days assembling the dish, unpacking and verifying the performance of the companion electronics. As our front cover photos show, everything comes out of air-freightable rugged containers that double as temporary equipment enclosures.

All uplinks are "assigned" an uplink power level (measured at the "waveguide flange" with a microwave in-line power meter) by the satellite operator. In this case, Fiji TV's 38.7 dBw boresight signal level would, Intelsat calculated, require around 110-130 watts of 6 GHz energy when fed to the

permanent 6.3m antenna. Assuming the dish was operating properly, was pointed correctly for 1701, this amount of uplink power should in fact create 38.7 dBw on the ground in Suva. But - by using a smaller uplink antenna (4.5m in this case), Ayer calculated, and Intelsat on the phone agreed, he should be running 200 watts.

For the initial turn on and tests that continued through Friday and until approximately noon on Saturday December 18th, it was 200 watts of power (uplink capability - 350 watts). Using an overkill 4.2m Paraclipse dish at SatFACTS with an ADL LHC/RHC feed and 20 degree rated LNB, we measured 23 dB carrier to noise during that period. Others, using dishes as small as 1.2m in Auckland (200 miles further south and therefore slightly further from boresight than SatFACTS), found Signal Level of 82% and Signal Quality of 72% at the same time (our 4.2m signal quality was 99% - it would be difficult to get much better than this!).

With only one transponder running (4.055GHz), speaking to Ayer on the phone, we suggested a check of cross-pole isolation. This is a measurement to determine how much signal ("none" is the best result) was being simultaneously radiated by the fly-away antenna system on RHC - Right Hand Circular. We easily measured +4-5 dB of signal on RHC - again, "none" is the correct (and best) answer. Ayer then checked his cross-pole and verified our finding. What no uplink wants to do is to couple into both (whether vertical and horizontal for linear or RHC and LHC for circular) simultaneously. Intelsat specs say the opposite pole should be -30 dB at the uplink antenna feed, pretty much guaranteeing that the satellite will not find the "wrong" pole signal arriving there. Alas, it was. Which meant - Fiji TV was on both poles simultaneously.

Ayer called Intelsat and they verified our measurements. And they had a decision: *"Turn the power down, to say 110 watts (around 2.8 dB lower) and see what happens."* Yes the cross pole went down, no it did not go away - totally. This would come back to affect how the system could be run for as long as it was using the "temporary" fly-away antenna. Why? Because there was apparently something happening in the temporary antenna feed and/or polarity "divider" which indicated some damage to the antenna system. Intelsat's concern was that "the system operate according to specifications" and *any* sign of cross-pole, where there should

be none, was a red flag. Fiji-TV would from that point forward, at least until their own 6.3m Ku band dish system is converted for C-band, be forced to operate nearly 3 dB below the peak power early viewers saw on December 17. In theory - the signal you have today *could* go up by as much as 2.8 dB when this problem is resolved (ultimately, Intelsat will decide this). 2.8 dB? Basically, the difference between a 1.2m dish equipped with a circular feed and a 1.6m dish equipped with a linear feed (which, because of too little signal, is not working at all). Our 4.2m level dropped to just a shade over 20 dB C/NR, where it has remained to press time.

Other test artefacts

A number of observers found that lip-sync (the lips move as the words are heard versus the lips move, pause, then the words come out) was "out" - especially on channels such as "E!" which features plenty of head only on the screen shots. Correctable (as indeed it largely has been in the interim - but not totally). Others commented on the "content" of The Cartoon Network, and, MTV. Surprise. Both are Singapore (and other parts of Asia - including Malaysia) directed rather than Australia and/or New Zealand. Cartoon is a much kinder, gentler version that we are accustomed to (older cartoons such as "The Jetsons" and "Deputy Dog" with significantly toned down action-violence) while MTV is much more like the USA adult service "VH1" with lower levels of four letter expletives as programs such as "The Osbornes" are not on the schedule (Fiji TV obviously has both MTV versions available - as some who caught several hours of initial Friday night transmissions noted while they switched back and forth). First-time satellite viewers in Niue and Tuvalu won't be nearly as alarmed as they might have been if Fiji TV had chosen the full-nothing-held-back versions of both channels for delivery by Sky Pacific into their thatched huts.

The reality of circular

Intelsat has chosen circular polarisation because it is very installer friendly. A *linear* signal, for peak reception, requires that the probe inside the LNB be rotated over approximately a quarter of a circle (such as from 12 o'clock to 3 o'clock) to (1) peak the desired signal, and, (2) of greater importance, "null" the opposite polarity reception. Unless this is done, you will have some signal fpm both polarities and the opposite polarisation, if on a frequency near to the desired polarisation signal, will create interference (lower BER or Bit Error Rates).

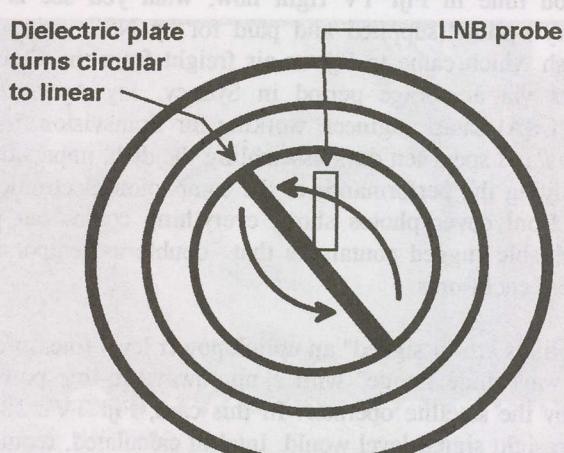
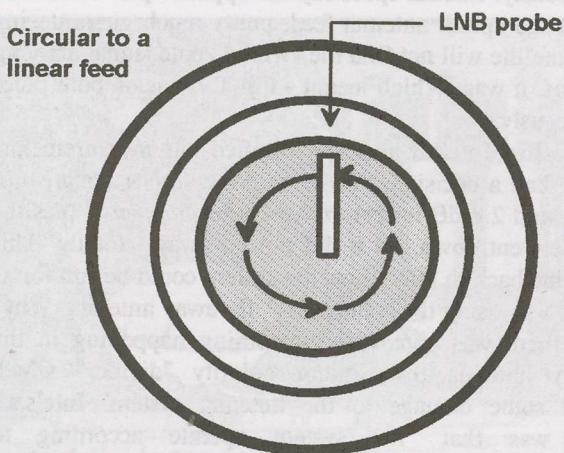
Service	VID	AUD	PCR
1/Fiji TV	512	650	128
2/Sky Enter	513	660	129
3/MTV-Nick	514	670	130
4/Cartoon	515	680	131
5/CNN	516	690	132
6/ABC A-P	517	700	133
7/Discovery	518	610	134
8/TCM	519	620	135
9/E!	520	630	136
10/Super	521	640	137
11/Bollywood	522	650	138
12/PPV	523	660	139

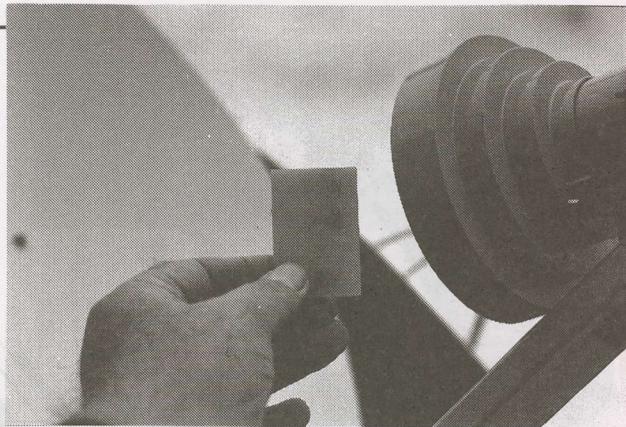
Notes: Actual Video, audio, PCR PIDs unlikely to change but which set goes with which programme channel is likely to be modified.

A left hand *circular* feed still requires some adjustment of the feed (depending upon the design of the feed) but if you are plugged into the LHC port, you should not have any measurable RHC signal present. This makes "circular polarisation" essentially "plug together and play" for the installer - no tedious, measurement equipment required, adjustments.

But this assumes you have a *real* circular feed. Av-comm makes one, ADL through their new owner Patriot Antennas (see SF#123, p. 4 and SF#124, p. 15) makes another. Both of these firms make prime-focus (parabolic dish format) feeds *only*. At least two firms located in Asia (including Azure Shine International, Inc.) manufacture a feed for offset dishes which can, with a simple addition, be "corrected" for circular polarity signals.

A circular polarity signal rotates on its centre - imagine a "corkscrew" - a "continuous thread" like an endless "slinky toy." But the LNB has a linear probe (signal pickup device) so it catches only 50% of the corkscrewed signal - the balance is cross poled. The answer, short of locating a LNB with a circular probe (good luck on *that* quest!), is to modify the corkscrew once it enters into the waveguide opening on the way to the probe.





The corkscrew is continuous but "moving," constantly; a "slinky" with attitude. The speed at which it rotates is a function of the medium through which it is travelling. The open mouth of the feed has air in it, so the corkscrew effect is a function of a slinky rotating in air. Nothing in air disturbs the rotation so passing through the mouth, down the round waveguide throat to the LNB probe, it arrives still circular. A circular signal that is only "captured" 50% of the waveform by the linear LNB probe drops around 3 dB in effective signal level - the rest is simply "lost." Thus a linear format feed-LNB-dish, without respect to whether it is prime focus or offset, will deliver a signal that is -3 dB with reference to the true circular footprint present. And -3 dB is like using a 1.2m dish whereas getting the 3 dB "back" into the system is an upgrade to a 1.6m (or, a 1.4m to a 2m, or, where it really begins to hurt, a 3.9m versus a 5.8m). Or to put it one other way, changing from an LNB that has a noise figure of 300 degrees Kelvin to an LNB with a noise figure of 20 degrees

Kelvin. Nobody would do this on purpose, of course, but trying to properly capture a circular polarity signal with a linear feed is every bit as serious a mistake. It will, for a marginal size dish, be the difference between the system working with a safety margin and not working - *at all*.

So back to the open throat of the feed. What we need to do is "stick" something in the throat to interrupt the circular polarity signal. As the "speed" of rotation is largely determined by the presence of only air inside the throat, something "stiffer" and able to "slow down" the rotation is required.

How about a piece of plastic? If you direct a microwave beam into a chunk of plastic, the solid material causes the wavefront to distort, and something beneficial occurs; the corkscrew turns into a plane (that is not "plain"!) and simple linear wavefront as it passes through the material. At the back end of the throat, nearest the probe of the LNB, what started

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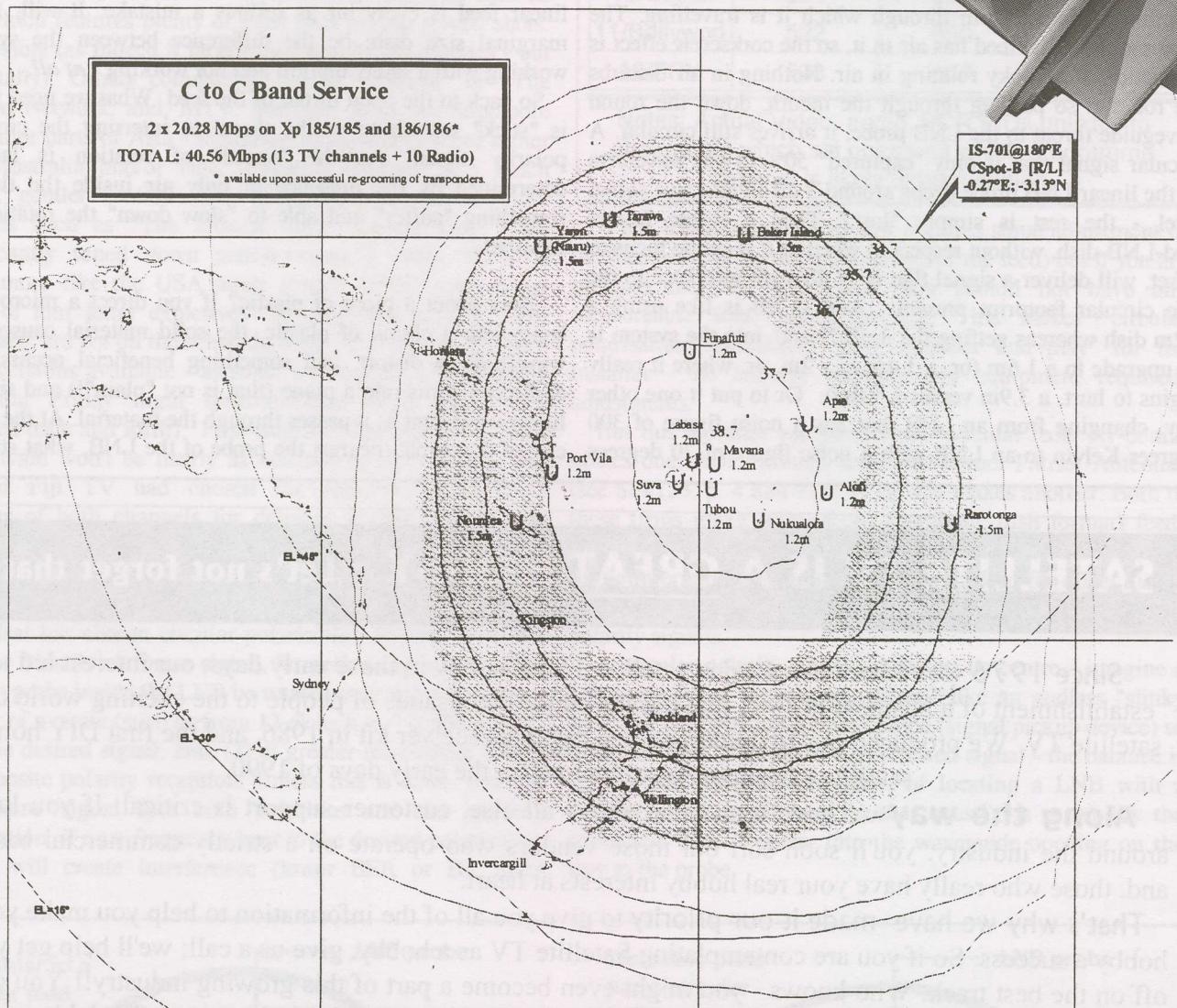
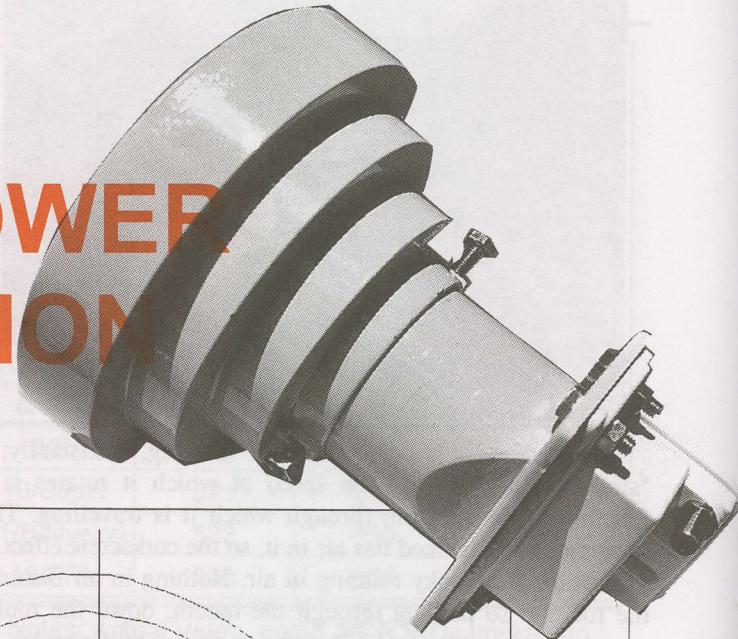
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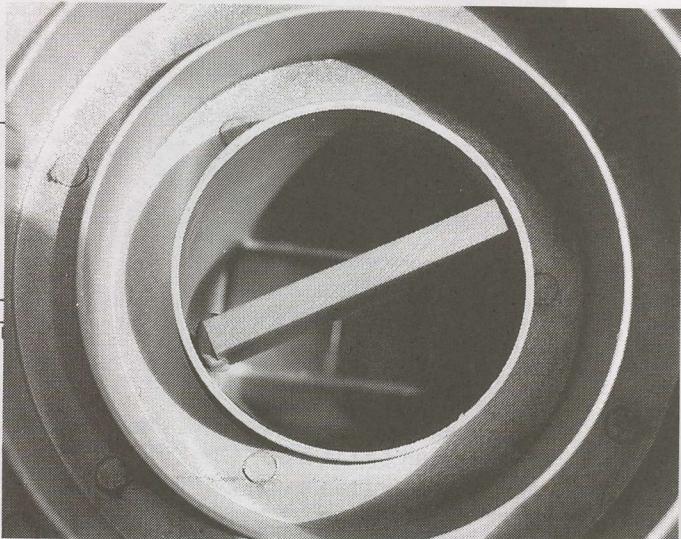
Link Analysis in CSB / CSB beam connectivity on 701 satellite at 180.00 ° East

A SATELLITE DATA	
Satellite	701
Satellite orbital location	180
Beam (receive/transmit)	CSB CSB
Transponder number (uplink/downlink)	85 185
Transponder frequency (uplink/downlink)	6.28 4.055

B TRANSPONDER BC DATA @ BC	
Transponder bandwidth & resource bandwidth	36
Saturation e.i.r.p. at beam center	38.7
Transponder Flux density at beam center	-93.0
Transponder G/T (receiving system sensitivity)	-1.5
Operational mode	Single carrier
Transponder input back-off	-1.0
Transponder output back-off	0.0

C EARTH STATION DATA						
	L1	L2	L3	H1	H2	H3
	HUB	HUB	HUB	HUB	HUB	HUB
Transmit Earth Station						
Antenna diameter	6.3	6.3	6.3			
Latitude coordinates, North (+); South (-)	-18.10	-18.10	-18.10			
Longitude coordinates, East (+); West (-)	178.40	178.40	178.40			
S/C aspect correction at E/S	1	1	1			
Antenna elevation angle	68.7	68.7	68.7			
Antenna true azimuth	5.14	5.14	5.14			
Voltage axial ratio	1.06	1.06	1.06			
Cross-pol isolation	30.7	30.7	30.7			
Tracking capability	No	No	No			
Receive Earth Station	Suva	Funafuti	Port Vila	Rarotonga	Nauru	Tarawa
Antenna diameter	1.2	1.2	1.5	1.8	1.5	1.5 m
Latitude coordinates, North (+); South (-)	-18.1	-8.6	-18.3	-21.2	-0.5	2.0 Degrees
Longitude coordinates, East (+); West (-)	178.4	179.2	168.6	200.1	167.0	174.0 Degrees East
S/C aspect correction at E/S	0.7	1.2	2	3.7	3.2	3.2 dB
Antenna elevation angle	68.7	79.8	64.9	56.3	74.7	82.6 Degrees
Antenna true azimuth	5.14	5.22	32.71	214.65	87.84	108.37 Degrees
Voltage axial ratio	1.3	1.3	1.3	1.3	1.3	1.3
Cross-pol isolation	17.7	17.7	17.7	17.7	17.7	17.7 dB
Figure of merit, G/T at 4.0 GHz	12.0	12.0	14.0	15.6	14.0	14.0 dB/K
Computed receive station G/T	12.0	12.0	14.0	15.6	14.0	14.0 dB/K
Computed receive gain G at 4.0 GHz	32.0	32.0	34.0	35.6	34.0	34.0 dB
Tracking capability	No	No	No	No	No	No

D CARRIER DATA						
	L1	L2	L3	L4	L5	L6
	DVB-2	DVB-2	DVB-2	DVB-2	DVB-2	DVB-2
Carrier description code						
Modulation scheme	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK
Information rate	20280	20280	20280	20280	20280	20280 kbps
Overhead	0.0	0.0	0.0	0.0	0.0	0.0 kbps
FEC coding	0.667	0.667	0.667	0.667	0.667	0.667
RS outer coding	204/188	204/188	204/188	204/188	204/188	204/188
Transmission rate	33008.2	33008.2	33008.2	33008.2	33008.2	33008.2 kbps
Carrier's allocated bandwidth	22.2810	22.2810	22.2810	22.2810	22.2810	22.2810 MHz
Carrier's IF noise bandwidth	16.5041	16.5041	16.5041	16.5041	16.5041	16.5041 MHz
Number of assigned carriers	1	0	0	0	0	0 #
Required Carrier Performance						
C/N threshold	6.1	6.1	6.1	6.1	6.1	6.1 dB
E/S/N threshold (Info+CH., Analog S/N)	5.2	5.2	5.2	5.2	5.2	5.2 dB
U/L rain margin	1.4	1.4	1.4	1.4	1.4	1.4 dB
D/L rain margin	1.50	1.50	1.50	1.50	1.50	1.50 dB
Annual availability	99.964	99.964	99.964	99.964	99.964	99.964 %



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How small can you go? Our SatFACTS 1m test system is in fact too small - right on the edge of lock.

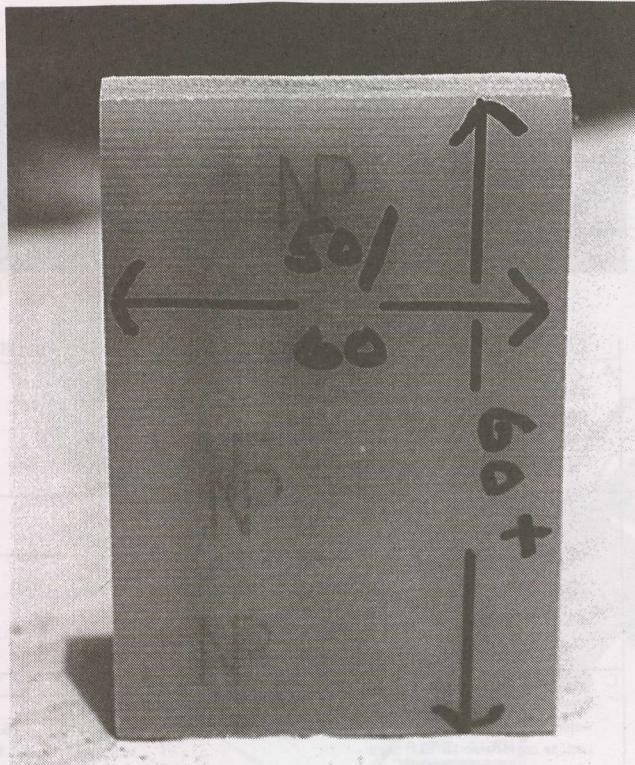
off as circular now becomes mostly linear. This insert is known, in technical circles, as a "dielectric plate."

There is "plastic" and there is "plastic." Not all plastic, of course, is of the same composition but virtually any plastic will work; some works better (i.e. you get more of the signal converted from circular to linear) than other. The very best first - not that difficult to locate in an "electronics" family - is G-10 Teflon circuit board - etched clean of any copper of course. Some (Dick Smith, etc.) pieces of circuit board are more useful than others. What you really should use is board (less any copper residue) that is rated for "microwave" applications (not all is and that which is tends to be more expensive). The piece you want is, as shown here p. 20, just wide enough to fit snugly into the throat of the LNB (measure first - we checked five different C-band feeds here and found they varied in "mouth width" between 60 and 65mm). It will also be slightly unsquare - at least 20mm "deep" (fitting down into the throat) and better yet 30mm. Thickness? Ideally, around 1mm but this is not critical - 2mm, even 3 is not going to have an adverse effect on the results. Some feeds, such as the ADL equipped with a probe rotation motor, have twin (1mm thick, deep) "slots" cut into the waveguide throat - the better for inserting the dielectric plate.

Can't find circuit board? Look again - this is not a very big piece and there may well be a segment on something electronic in your junk bin that could be "snipped" or cut out to provide the raw material. Remember - pure plastic/circuit board, no copper traces, no solder eyelets. Just a pure hunk, unadulterated with attachments.

Stick it where?

It goes into the throat and for a start make your single-probe LNB vertical (12 o'clock > 6 o'clock) or if a dual probe LNB (switching type for both linear polarities) one probe vertical and the other horizontal (3 o'clock > 9 o'clock). You will get better first-timer results if the LNB is single pole



Example - only. Do as we say (text) not as we did. A block cut as a "dielectric plate insert."

with $12 > 6$ adjustment, saving dual pole until you have mastered what follows.

Now, stick the plastic into the throat, at least 20mm into the opening for a start, and with the LNB probe at $12 > 6$, position the plastic insert at a 45 degree angle (i.e. $10.30 > 4.30$). All of this assumes you have previously peaked the dish on I701, 4.055 GHz, Sr 16.505, 2/3 and lacking an analyser or S 20, you at least have the receiver's Signal Level (SL) and Signal Quality (SQ) display functioning. Start off with the numbers before the plastic was inserted, and then note the new numbers with the plastic at $10.30 > 4.30$. If your LNB is both V and H (two probes), the positioning of the plastic remains the same - $10.30 > 4.30$ with V $12 > 6$ and H $9 > 3$ for the LNB probes.

Adjustment fine tuning time. Using your spec an or receiver as a level and quality monitor, very carefully adjust the $10.30 > 4.30$ "angle" towards either $11 > 5$ or $10 > 4$. Change it a tiny amount, get your hand out of the feed and your body away from the dish, and remeasure. If doing this with a single polarity LNB, the signal will peak cleanly at one setting. If using a two-polarity LNB, when you have peak LHC (Fiji) on one LNB position (say, vertical), by switching the LNB voltage, you will now have the opposite polarity (RHC - for, example, WorldNet - 3886, or, NASA-TV - 3854). Those using smaller dishes and a linear feed at present for NASA, for example, will benefit by having it "come up" between 2 and 3 dB when making this modification to the feed.

So why, if this is so good, don't you modify your feed system anyhow? The best reason is that while the plastic insert *improves* circular signals, it *degrades* the linear by a similar amount (-1 to -2 dB). For permanent one-dish installations only for Fiji-TV, you won't need linear anyhow - so no loss. But dishes that move from satellite to satellite will probably find the plastic insertion unacceptable for permanent installation.

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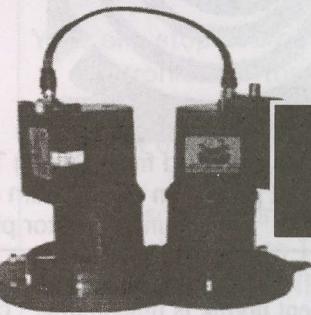


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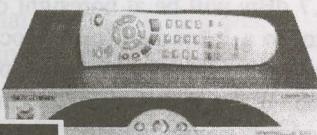
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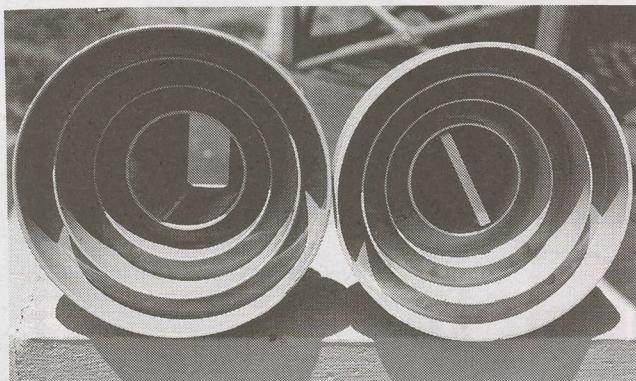
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PSI)
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150cm, 180cm, 240cm

Cables
RG-6, RG-11 / 100m, 305m
PC to TV Converter PX Brand



Pair of offset-design C-band feeds obtained from Strong Technologies (+61-3-8795 7990) with "dielectric plate" insert in unit on right. In right hand photo, on a 1 or 1.2m dish, the feed is a "monster" dominating the relatively puny reflector physical size.

The offset version

Intelsat believes, once the permanent uplink is functioning, that 38.7 dBw will be at boresight over the Fiji Islands. This translates to a 1.2m dish (prime focus or offset) provided the feed has been adapted to circular polarisation, as previously described. If the dish has only a linear feed, where 1.2m is suggested for a circular feed, a 1.6/1.8m will be required. Smaller dishes must be circular, larger ones should find linear OK (although some adjustment of the LNB probe will be required to peak the LHC signal).

Ideally, Fiji TV wants to use 1.2m offset dishes within the home country (or hopefully, they could be 90cm dishes!). As SF#123 has previously reported, C-band offset feeds, adaptable to circular, are a rare animal indeed. Through Strong Technologies (tel +61-3-8799 7990; ask for Shawn)

resources we located two different versions for test, although converting to circular did require use of the "dielectric plate" (i.e. plastic) insert. We tested these on a 1m offset which we found would, under the best of everything (very careful adjustment tweaking), did produce a full lock but with absolutely no margin (headroom). This would not be satisfactory as a permanent installation (ideally you want +3 dB of signal *above* [greater than] "threshold"); a 1.4m would be the minimum size here. We found the Azure Shine International R120 / Strong SRT D120A package was the best performer. Word of warning: A prime focus C-band feed is not going to function properly (produce suitable dish-gain) when used on an offset dish. Offset feeds and prime focus feeds are two related (as in "cousins") of the same family, but they are *not* interchangeable.

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Old fashioned to a fault?
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C1 text continues from page 8

(T2/12.367 Vt, TV)

- 6) ACC (Australian Christian Channel), V=1091, A=1092, FTA
- 7) ABC (no video PID), A=512; has EPG of ABC TV NT
- 8) Ch 9 (no video PID), A=512; EPG possibly Ch 9 NT
- 9) SBS (no video PID), A=512; EPG possibly NT SBS
- 10) Ch 7 (no PIDs); EPG has the same program as Central 7, but text used is not an identical copy

Radio: 1) gc4, A=1102

- 2) SBS AM, A=502
- 3) SBS FM, A=512

Transponder T3: Centre frequency 12.407 (Vt); 36 MHz width. Available footprints, NA and NANZ. Currently on NANZ. Encryption Irdeto V1, Mycrypt. On 12.407 (Vt), Sr 30.000, 2/3 (Aurora "home" transponder), 42 channels (20TV, 20 radio, 2 data) of which 7 TV and 15 radio are in use. The two data channels are possibly software upgrades for receivers. In the following list, the missing channel numbers are spares and channels are Irdeto V1 and Mycrypt encrypted unless otherwise labelled.

TV: 1) Tune 156E, (V=53, A=54) FTA (Aurora info)

- 2) SBS SE, V=512, A=513, T=516
- 3) SBS WA, V=560, A=561, T=563
- 4) BTV1, V=1792, A=1793 (new PIDs, could return to V=34, A=33)
- 5) BTV2, V=64, A=63
- 7) 7 Central, V=1280, A=1281, T=1282 (moved from T10; long term status in doubt)

9) SBS Qld, V=528, A=529, T=531(moved from T10)

Radio: 3) Red FM, A=256 (Mcrypt, WA only)

- 4) Spirit, A=257 (Mcrypt, WA only)
- 5) TAIMA, A=1284 (private feed, moved from T10)
- 6) SBS R Qld, A=530 (moved from T10)
- 9) SMA BUS4 CML, A=272 (Mcrypt only; Coles Myers Ltd?)
- 10) QTAB, A=57 (Qld TAB, also on B3)
- 11) NIRS, A=56 (National Indigenous Radio)
- 12) RPH, A=60 (Radio for print handicapped)
- 13) BBC Radio, A=76 (BBC World Service)
- 14) CBAA, A=74 (commercial broadcaster feed)
- 15) SBS R SE, A=514
- 16) SBS R NT, A=515
- 17) SMA BUS3, A=69 (Woolworths)
- 18) UCB, A=55 (Vision FM, Australian religious)
- 20) SBS R WA, A=562

Transponder T4: Centre frequency 12.447 (Vt); 36 MHz width. Available footprints, NA and NANZ. Currently on NA. Encryption Irdeto V1, Mycrypt, NDS. On 12.447 (Vt), Sr 27.800, 3/4, pay-TV TS ID 16 (used for Fox Sports Active [multiple camera angles] and Foxtel's interactive games); 11 channels.

1) SPA, (5x video) V=1011, 1021, 1031, 1041, 1051; A=1012, 1022, 1032, 1042, 1052 + 6 data PIDs

2) SPM, V=1021, A=1022, + 1 data PID

3) SPH, V=1031, A=1032

4) SPB, V=1041, A=1042

5) SPW, V=1051, A=1052

6) AUSA, same video and audio PIDs as 1) SPA, + 4 data PIDs

7) Foxtel Gamesworld, one data PID

8) MindGames, V=1061, no audio PID, 3 data PIDs

9) MIN2, V=1061, no audio PID, 10 data PIDs

10) The Arcade, V=1061, no audio PID, 3 data PIDs

11) ARC2, V=1061, no audio PID, 10 data PIDs

Transponder T5: Centre frequency 12.487 (Vt); 36 MHz width. Available footprints, NA and NANZ. Currently on NA. Encryption NDS only. On 12.487 (Vt), Sr 27.800, 3/4, pay-TV TS ID 15 (currently carrying Foxtel's Network 9 channels).

TV: 1) Channel 9 (possibly Brisbane), 2 x video V=1021, V=1081; 2 x audio A=1022, 1082; T= 1026 + 2 data PIDs.

2) Channel 9 (possibly Sydney), 2 x video V=1041, V=1081; 2 x audio A=1042, A=1082; T=1046 + 2 data PIDs

3) Channel 9 (possibly Melbourne), 2 x video V=1051, V=1081; 2 x audio A=1052, A=1082; T=1056 + 2 data PIDs

4) Ch9ph (possibly to-be Perth), currently same V,A,T PIDs as 3) + 7 data PIDs

Transponder T6: Centre frequency 12.527 (Vt); 36 MHz width. Available footprints NA and NANZ. Currently on NA. Encryption Irdeto V1 and Mycrypt. On 12.527 (Vt), Sr 30.000, 3/4 (Aurora's second transponder), 39 channels (15 TV and 24 radio) of which 8TV and 24 radio are in use. In following list, second number is the network channel and the missing numbers are spares.

TV: 1) 21. ABC TV WA, V=800, A=801, T=802

2) 22. GWN TV, V=1792, A=1793, T=1794 (AUSTEXT)

3) 23. WLK (Westlink, includes Access 31 weekends) V=64, A=65 (new PIDs)

4) 24. WIN, V=1536, A=1537, T=1538

7) 27. SBS SA, V=544, A=545, T=547 (currently FTA, moved from T10)

9) 29. ABC TV NT, V=832, A=833, T=834

10) 30. IMP TV (Imparja), V=1024, A=1025, T=1027

11) 31. ICTV (Imparja guide, Aboriginal programmes), V=1040, A=1041

Radio: 1) 21. RABS tone (-18 dBfs/400 hertz dual mono) FTA, A=80

2) 22. ABC FM WA, A=804

3) 23. ABC RN WA, A=805

4) 24. ABC RR WA, A=806

5) 25. 990AM, A=66

6) 26. ABC RR WS, A=807

7) 27. SBS R SA, A=546 (currently FTA, moved from T10)

8) 28. ARDS (Aboriginal), A=1072 (FTA)

11) 31. ABC RR AS (Alice Springs), A=839 (being moved to T1/upper)

12) 32. ABC FM NT, A=836 (being moved to T1/upper)

13) 33. ABC RN NT, A=838 (being moved to T1/upper)

14) 34. ABC RR NT, A=837 (being moved to T1/upper)

15) 35. Caama (8KIN Alice Springs), A=1056

16) 36. TEABBA (Darwin), A=1057

17) 37. 5PY (Umuwa, SA), A=1058

18) 38. 2CUZ (Muda Aboriginal Corp, Bourke, NSW) A=1059

19) 39. PAKAM (Pilbara, Kimberley, Aboriginal, NT) A=1060

20) 40. PAW (Pintubi Anmatjere Warlpiri, NT) A=1061

21) 41. Arrow (in store feed), A=1062 (FTA)

22) 42. 8HA (Alice Springs), A=1063

23) 43. Mulba (Aboriginal), A=1064

24) 44. GUMALA (Aboriginal), A=1065

C1 text continues page 30, here

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 17 JAN, 2005

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym
Thcm3/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(.000)
	ANT Greece	3672/1478H	1 TV	3/4	13(.333)
	Korean Central	3665/1485H	1	2/3	3(.367)
	TARBS ME mux	3640/1510H	12TV, 12 radio	2/3	28(.066)
	Chi Nepal	3626/1524V	1	3/4	15(.556)
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(.667)
	SE asia Mux	3569/1581H	2+ TV	3/4	12(.500)
	RR Sat mux	3551/1600H	8TV, 10 radio	3/4	13(.333)
	JAIN TV	3538/1612V	1TV	3/4	3(.300)
	PTV1 +	3521/1629V	1TV, 1 radio	3/4	3(.333)
	FTA Mux	3520/1630H	12TV, 12 radio	3/4	29(.800)
	KTN plus	3500/1650H	2+ TV	3/4	26(.667)
	TVK Cambodia	3448/1702H	1TV	1/2	6(.312)
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(.667)
	KCTV/Korea	3424/1726H	1TV	3/4	3(.366)
	Thai Global	3425/1725V	up to ??	2/3	27(.500)
InSat 2E/83	ETV mux	4005/1145V	6+ TV	3/4	27(.000)
	Hyd Dig 2E	3910/1240V	1	3/4	5(.000)
	Katrali TV	3699/1451V	1	3/4	3(.184)
	Indian mux	3643/1507V	3	3/4	19(.531)
	ETV Mux#2	3485/1665V	4+TV	3/4	27(.000)
	Sky Bangla	3430/1720V	1TV	3/4	6(.000)
NSS6/95E	Ant Pac (Greek)	11.104H-Australis	1 TV	3/4	2(.800)
As2/100.5E	Guangdong TV	4075/1075H	1TV + radio	3/4	6(.000)
	Euro Bouqt	4000/1150H	6TV, 21r	3/4	28(.125)
	Reuters News	3905/1245H	1TV	3/4	4(.000)
	WorldNet	3880/1270H	4+/28radio	1/2	20(.400)
	APTN Asia	3799/1351H	1	3/4	5(.632)
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)
	Macau MUX	4148/1002V	5TV	3/4	11(.850)
	Feeds	4086/1064V	1	3/4	5(.632)
	Dubai MUX	4020/11430V	4+, radio	3/4	27(.500)
	Fashion TV	3796/1354V	1	3/4	2(.626)
	Trace TV	3792/1358V	1	3/4	2(.400)
	3-ch miniMUX	3752/1398V	up to 3	3/4	5(.640)
	Saudi TV1	3660/1490V	7+tests	3/4	27(.500)
As3S/105.5E	Telstra I-Net	12.596V	no TV	5/6	30(.000)
	RR Mux	3669/1481V	up to 5 TV	3/4	13(.333)
	Zee bouquet	3700/1450V	10TV	3/4	27(.500)
	Ch News Asia	3706/1444H	1TV (+)	3/4	6(.000)
	3 ch MUX	3723/1427V	3TV	3/4	6(.500)
	SAB TV	3743/2407V	1TV	3/4	3(.300)
	Ariang TV	3755/1395V	1	7/8	4(.418)
	Now TV +	3760/1390H	up to 10TV	7/8	26(.000)
	Star TV	3780/1370V	7(+)?TV	3/4	28(.100)
	GXTV	3806/1344V	1TV + 3 radio	3/4	4(.420)
	Shaanxi TV	3813/1337V	1TV + 2 radio	3/4	4(.420)
	Anhui TV	3820/1330V	1TV + 2 radio	3/4	4(.420)
	Jiangsu TV	3827/1330V	1TV + 2 radio	3/4	4(.420)
	HLITV	3834/1316V	1TV	3/4	4(.420)
	Star TV	3840/1310H	7(+)?TV	7/8	26(.850)
	Star TV	3860/1290V	5(+)?TV	3/4	27(.500)
	Abu Dhabi MUX	3880/1270H	8+TV, 10Radio	3/4	27(.500)
	Dragon TV	3886/1264V	1 TV	3/4	4(.800)
	Shaanxi	3895/1255V	1TV + 6 radio	3/4	6(.813)
	Jilin TV	3914/1236V	1TV + 1 radio	3/4	4(.420)
	Star TV	3920/1230H	4+ TV	7/8	26(.850)
	Star TV	3940/1210V	6(+)?TV	7/8	26(.850)
	CNNI	3960/1190H	8(+)?TV	3/4	27(.500)
	StarTV	3980/1170V	6+TV	3/4	28(.100)
	Star TV	4000/1150H	8(+)?TV	7/8	26(.850)
	Sahara digital	4020/1130V	8TV	3/4	27(.250)
	Hubel TV	4035/1115H	1TV + 2 radio	3/4	4(.420)
	Tianjin TV	4046/1104V	1TV + radio	3/4	5(.950)
	Sichuan TV	4051/1099H	1TV + 1 radio	3/4	4(.420)
	Qinghai TV	4067/1083H	1TV + 2 radio	3/4	4(.420)
	Human TV	4082/1068H	1TV + 1 radio	3/4	4(.420)
	Pakistani TV	4091/1059V	5TV, 1 radio	3/4	13(.333)
	Sun TV	4095/1055H	1	3/4	5(.554)
	TVB8 Mux	4110/1040H	3	3/4	13(.650)
	Indus News	4115/1035V	1	3/4	3(.222)
	CCTV bqt	4129/1021H	4(+)?TV	3/4	13(.240)
	Zee Bqt #2	4140/1010V	8(+)?TV	3/4	27(.500)
	Henan TV	4166/984V	1TV + 4 radio	3/4	4(.420)
	Fujian TV	4180/970V	1TV + 2 radio	3/4	4(.420)
	Jiangxi TV	4187/963V	1TV + 2 radio	3/4	4(.420)
	Liaoning TV	4194/956V	1TV + 2 radio	3/4	4(.420)
Cak1/107.5	Indovision (S-band)	2,535, 2,565, 2,595, 2,625, 2,655	33(+)?TV	7/8	20(.000)
T Kom/108E	IndoBqt	3460/1690H	up to 6	3/4	28(.000)
C2M/113E	TPI	4185/965V	1	3/4	6(.700)
	TVE Asia-Africa	4160/990H	1	3/4	5(.632)
	Anteve	4144/1006V	1	3/4	6(.510)
	Kabelvision Mux	4080/1070H	7+ TV	7/8	28(.125)
	Indostar	4074/1076V	1	3/4	6(.500)
	Satelindo	3935/1215H	1	3/4	6(.700)
	Bali TV	3926/1224H	1	3/4	4(.208)
	Indo MUX	3880/1270H	3+ TV	7/8	28(.121)

Receivers and Errata	
CA (#1, 3), FTA audio #2 (dm)	
Late July 04: room for more (FTA)	
Global footprint; changes 02/03.	
CA + 2 FTA(A1TV, IRB3)(
New 03/03; FTA	
Thai + Indian services; FTA	
MRTV3, MRTV (DM)	
3TV, 5radio inc. Hellas TV Greece FTA	
PIDs 4132/4133	
frequency change	
Aug 04: 5TV, 1 ra FTA (India)	
Irdeco 2, apparently SE Asia based (08-04)	
FTA	
3FTA: TV5, VTV4, ATN Bangla	
Not 24 hour, FTA?	
FTA (reaches SE Australia)	
Several ETV now here; wide beam	
SCPC, OK E. Aust. wide beam	
SCPC, OK E. Aust wide beam	
corrections 12/02	
Several new ETV here; Asia beam	
New - November 2002	
(still) FTA 011-04; was 11.083H	
July 04: FTA	
FTA, TV + radio; TV5 Asia moved "down" April	
Was 3923H, sometimes FTA	
FTA; multiple audio services V2360, A2320	
Sometimes FTA; also 3895Vt	
FTA & CA	
5 chs TV, FTA, some tests	
FTA SCPC feeds	
FTA , EuroSport PID change (1213/1313) June	
FTA as of May 1, 2003	
new here Dec 2004; Euro-French music videos	
Sun-TV, Surya TV, KTV (FTA)	
FTA MCPC, Yemen, MBC EUROSport tests	
Signal useful for dish testing - no TV	
Blue Kiss moved to 3760Hz from here Dec 2004	
Now SECA 2 CA (10-04)	
New September 2003; English + V1160, A1120	
Conax CA, 3 ch movie mux; Dec 2004	
FTA SCPC; New PIDs V3601, A3606 June 2003	
CA + FTA + Blue Kiss adult (CA)	
NDS CA (Pace DVS211, Zenith)	
Guangxi TV; was As2	
Was As2	
Was As2	
Was As2	
Was As2; HeiLong	
NDS CA (Pace DVS211, Zenith)	
NDS CA (Pace DVS211, Zenith)	
New April 2004: link to Optus B3 Globecast	
Shanghai	
Apparently Mongolia; was As2	
Was As2	
Star Sports Asia (+), FTA NTSC; V514, A670 (10-04)	
NDS CA as above; may NOT be operational	
PowVu CA; new SR Apr 29; CNN radio FTA	
NDS CA, Star News India FTA PID 514, APID 648	
NDS CA w/ 4(Chinese) FTA	
New Sr September	
Was As2	
new December 2005	
Was As2	
Was As2	
Was As2	
new Sr. channels Nov 2003	
"History Channel" - SCPC	
MATV Chinese movies FTA +CA; new Sr 05-04	
Hindi (+ "Plus")	
moved from 4115	
Now SECA 2 CA (10-04); 1 occ. FTA (varies)	
Was As2	
NDS CA using RCA/Thomson, Pace IRDs, 2,535 has 2 FTA	
also 3586H/17.500, 3496H/19.615	
FTA SCPA; NT/NC only	
New August 2003	
change from 4055V; FTA SCPC	
also try 3500H, 27.000, 3/4; strong NZ	
FTA (new 06-03); V2201, A2202	
test card - only - reported	
FTA; may not be active full time	
FTA; Sr change 01/03; erratic	

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
	Brunei/Sing	3733/1417H	1TV	3/4	6(,000)
	SCTV	3726/1424V	1TV	3/4	6(,620)
	RCTI	3473/1677H	2	3/4	8(,000)
As4/122E	Aust DTH test	12.453V	2	3/4	20(,000)
	CCTV internal	4020/1130V	6	3/4	27(,500)
	CCTV internal	4100/1050V	6	3/4	27(,500)
Jc3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(,000)
	Asian bqt	3960/1190V	up to 8	7/8	30(,000)
T18/138	Tests	3460/1690V	1	3/4	30(,000)
Jc2A 154	BYU-TV	3915/1245V	1+languages	3/4	4(,166)
MeasSs2	Astro Mux	11.602H	up to 17TV	3/4	41(,500)
	VTV MUX	11.522V	3 TV	3/4	9(,766)
B3/152	AuroraBiz	12.407V	4 TV, 10 radio	2/3	30(,000)
	Occ feeds	12.445H	1TV	3/4	6(,666)
	Globecast 2	12.525V	13 TV, 8 radio	2/3	30(,000)
	Globecast (feeds)	12.550-555V	1TV	3/4 & 2/3	6(,110/,670)
	UBL/tests	12.613H/T14L	11+TV	3/4	22(,500)
	UBL/tests	12.649H/T14U	11+TV	3/4	22(,500)
	Globecast 1	12.658V/T7	14TV, 15 radio	2/3	30(,000)
	UBL/tests	12.674H/T15L	11+TV	3/4	22(,500)
	UBL/tests	12.701H/T15U	11+TV	3/4	22(,500)
	WA ABC	12.702V	1 TV, 1 radio	7/8	14(,288)
	WA SBS	12.720V	4TV, 2 radio	5/6	12(,600)
	WA GWN/WIN	12.738V	2TV	7/8	14(,295)
C1/156E	Optus test bed	12.324V/1U	4+ (ABC) TV	1/2 (*)	24(,450*)
	Pay TV	12.365V/T2	11TV, 2 radio	3/4	27(,800)
	Aurora Home	12.407V/T3	5 TV, 13 radio	2/3	30(,000)
	Pay-TV	12.447V/T4	5TV, 4 data	3/4	27(,800)
	Pay TV (test)	12.487V/T5	3+ TV, data	3/4	27(,800)
	Aurora 2	12.527V/T6	7TV, 20 radio	3/4	30(,000)
	Pay-TV	12.567V/T7	10 TV	3/4	27(,800)
	Pay-TV	12.607V/T8	10 TV	3/4	27(,800)
	Pay-TV	12.647V/T9	10 TV	3/4	27(,800)
	Aurora 3	12.720V/T10	6TV, 16 radio	3/4	30(,000)
	Austar	12.305H/T11	6TV, 24 data	3/4	30(,000)
	Pay-TV	12.358H/T12	10 TV	3/4	27(,800)
	Pay-TV	12.398H/T13	10 TV	3/4	27(,800)
	Pay-TV	12.438H/T14	6TV, 3 data	3/4	27(,800)
	Pay-TV	12.478H/T15	10 TV	3/4	27(,800)
	Pay-TV	12.518H/T16	10 TV	3/4	27(,800)
	Pay-TV	12.558H/T17	10 TV	3/4	27(,800)
	Pay-TV	12.598H/T18	TV	3/4	27(,800)
	Pay-TV	12.638H/T19	10TV, 30 radio	3/4	27(,800)
	Pay-TV	12.688H/T20	11TV	3/4	27(,800)
B1/160	Tasmania DTV	12.354H	1TV	3/4	5(,100)
	Occ. feeds	12.380H	1 TV - *	3/4	6(,111)
	Occ. feeds	12.384V	1 TV - *	3/4	6(,111)
	Net 7 service	12.397H	1	3/4	7(,200)
	Imparja mx	12.379H	2TV + 8 radio	3/4	5(,424)
	7 digital feeds	12.397H	1TV	3/4	7(,200)
	Feeds to NZ	12.411V	1 TV	3/4	6(,111)
	SBS Mux	12.420H	3+ TV, 2+ radio	5/6	12(,600)
	TVNZ DTH	12.456V	5+TV	3/4	22(,500)
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(,500)
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(,500)
	Sky NZ	12.644/671V	9TV	3/4	22(,500)
	ABC HDTV	12.610H	5TV	7/8	14(,3288)
	Sky NZ	12.707/734V	8+TV	3/4	22(,500)
	Mix 106.3	12.574H	1 radio + data	3/4	1(,851)
P8/169	ABS-CBN	12.575H	4+TV, 4+ radio	2/3	13(,845)
	JEDI/TVB	12.686H	11+ TV	3/4	28(,126)
	ABC A-P	4180/970H	2TV, 2 radio	3/4	27(,500)
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(,125)
	Taiwanese MUX	4080/1070H	12+ TV	5/6	30(,000)
	NHK Joho	4060/1090H	7TV, 1 radio	3/4	26(,470)
	FOX Mux	4040/1110V	up to 5TV	7/8	26(,470)
	NET +	4121/1029V	1 TV	3/4	4(,774)
	ESPN USA	4020/1130H	8+TV, data	3/4	26(,470)
	Discovery	3980/1170H	8 typ	3/4	27(,690)
	CalBqt/Pas8	3940/1210H	up to 3+ FTA	7/8	27(,690)
	CNBC HK	3900/1250H	up to 7TV	3/4	27(,500)
	FilipinoMUX	3880/1270V	up to 8TV+radio	5/6	28(,694)
	TaiwanBqt	3860/1290H	12TV + 30 r	5/6	28(,000)
	CCTV Mux	3829/1321H	up to 4+ 1 radio	3/4	13(,240)
	TVBS-N	3836/1314V	1FTA , 4+ CA	3/4	22(,000)
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(,632)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(,000)
	Discovery Asia	3764/1386V	Up to 6 TV	3/4	19(,850)
	MTV	3740/1410H	8	2/3	27(,500)
P2/169E	WA Mux Pv	12.281V	3+ TV, radio	2/3	27(,500)
	Ariang TV	12.401V	1TV	3/4	4(,400)
	ABS-CBN	12.575H	4TV, 2 radio	13(,845)	
	NBN	4126/1024V	1TV	3/4	3(,075)
	TARBS feeds	4090V/1060V	9TV + radio	3/4	21(,000)
	Feeds	4027/1123H	1+TV	2/3	6(,620)
	Middle East	3836/1314V	4 typ	3/4	13(,331)
	Feeds	3803/1347V	1	3/4	6(,000)
	PAS/BBC mux	3744/1406V	3	3/4	21(,500)

Receivers and Errata	
FTA	: Singapore 23hrs, Brunei 1 hr; Brunei V1200 was on 4048V; New Caledonia, parts of Australia
FTA SCPC	: Australia, New Caledonia, some English
Planned Aust DTH	: VTV CA, other FTA (10-04)
New Aug '04	: Irdeto 2
New Aug '04	: Irdeto 2 + TVSN occ. FTA
PowerVu	: some FTA (Ch. 1 & 3)
CA & FTA	: NTSC; Japan, Taiwan
	: also try 3660Vt, Sr 30.000, 3/4
Erratic service	: strong NZ & Australia
Aust East beam	- 3 FTA + 14 CA
WA only?	: Skew path, intended Asia
differs from	12.407 C1; tune ch FTA ; NZ+Au
Net 10, V8 racing	: also 12.452H, same parameters
NZ + Au, FTA	: Mrypt CA
occ feeds, NZ + Au	: recently 12.553V
High performance beam	: not NZ
High performance beam	: not NZ
NZ + Au (Mrypt, PowVu capable)	
High performance beam	: not NZ
High performance beam	: not NZ
ABC WA tests, FTA	
SBS, radio tests WA FTA	
Irdeto V2 CA, tests (GWN, WIN)	
new #s 11-04	: *-may be temporary numbers
Tests	: SBS-NDS CA, others FTA when here
NZ (90cm) + Australia	(Only svc left on NZ; C1)
Australia NA only	(leakage to Norfolk, New Cal)
Australia NA only	(leakage); 9-Net x 3 widescreen
Arrow radio, tone FTA	
Pay-per-view movies, CA	
Pay-per-view movies, CA	
Pay-per-view movies, CA	
Secondary Aurora + Optus services	
Austar inter, Expo FTA	
NDS CA + Mrypt, CA	
CA, subscriptions available Australia, Norfolk	
Sky News active, "Help" FTA	
CA, subscriptions avail Au, Nrlfk; TVSN FTA	
CA, subscriptions available Australia, Norfolk	
"Home"CA, subscription available Australia, Nrlfk	
CA, subscriptions avail Australia, Nrlfk	
CA, subscription available Australia, Nrlfk	
CA, subscription available Australia, Nrlfk	
Central beam; also Central 7 at times	
* - plus 12.451H, 12.460H	
* - plus 12.293V, 12.402V, 12.411V	
Full schedule less commercials - links; may be CA	
PIDs vary; also try 12.360, 12.370	
occ digital feeds; typ fta	
Often NTSC; USA-Australia-NZ	
Also 12.437H same params; SBS HDTV + w-s	
FTA 4 channels (TVNZ x 4); +Maori here	
NDS CA, subscription available NZ	
NDS CA, subscription available NZ	
NDS CA, subscription available NZ	
also see 12.626, 643, 670, 688, & .706H	
NDS CA, subscriptions available NZ	
Radio SCPC is "cover" for high speed data	
FTA, plans CA "soon"	
June 2002-Irdeto-2 CA	
Dateline west; also east PAS2, 3901V	
PowVu CA	
Tests - CA service announced	
PowVu CA & FTA; subscription available	
was PAS-2, previously 3992Vt; feeds FTA	
NET25 + FTA; new PIDS April '03; reload	
PowVu CA; ch 11 DCP-CCP bootload; audio FTA	
PowVu/CA (some audio FTA)	
PowVu CA & FTA (EWTN + CBS +)	
NDS CA (6 channels); one test card occ FTA	
Myx FTA V1960, A1920 + radio FTA	
Mixed FTA & CA; STC gone (CA)	
PowVu FTA, replaces PAS-2 svc	
Difficult because of CCTV cross pole	
was As2; PowVu CA	
PowerVu, some audio FTA	
PowerVu; Asian MUX; new parameters Nov '03	
# 8 MTV China FTA V289, A290; rest CA	
PowVu CA, WIN, ABC NT, SBS; status unknown	
Test - may not stay permanently	
Temp FTA; will be CA, subs 011-800-2270-0722	
May not be permanent; not available to NZ	
Occ FTA (Chile +); BIG power reduction Nov 03	
Sporting feeds from USA (occasional)	
Irdeto 2 CA - subscriptions avail; Strong Tech	
PowVu (FTA) occ sport feeds inc. Japan BB	
BBC, test card FTA, others nominally CA	

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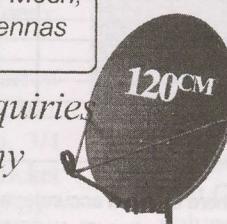
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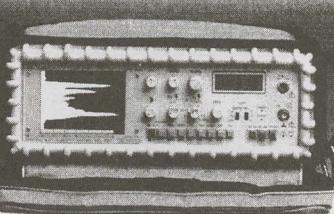
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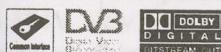
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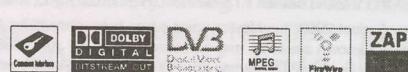
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Compact embedded Irdet
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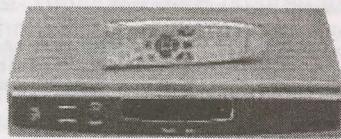
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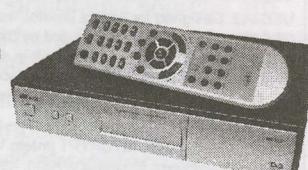
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Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS2/169E)	Adventists.tv	4040/1010H	1	2/3	5(.900)
	Feeds	3868/1182H	1	2/3	6(.620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	HK bouquet	3850/1300H	up to 8	2/3	24(.900)
	Korean Bqt	3771/1379H	1	3/4	6(.510)
I304/174E	IPSTAR	12.619H	1	2/3	25(.220)
	Tests-NZ beam	12.646H	1	3/4	22(.418)
	RFO Poly	4027/1123R	1TV	3/4	4(.566)
I701/180E	TNTV	11.060&11.514V	9	3/4	30(.000)
	TVRFO	11.136V, 11.174V	6+TV, 3+ radio	3/4	23(.149)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	PBS	12.648HH	16TV possible	3/4	28(.066)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(.680)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
Fiji Sky Pacific		4095/1055LHC	6TV + future radio	3/4	16(.505)
Fiji Sky Pacific		4055/1095LHC	6TV + future radio	3/4	16(.505)
	TVNZ/feeds	4052/1098RHC	1	3/4	5(.632)
	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	NBC to 7 Oz	3960/1190R	1	7/8	6(.447)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)
	Ioarana	3772/1378L	1	3/4	4(.566)
	NASA TV	3854/1296R	1 TV	3/4	2(.000)
	TVNZ	3846/1304R	1	3/4	5(.632)
NBA (Barker) Ch		3803/1347R	1	3/4	6(.111)
10 Australia		3769/1381R	4	7/8	20(.000)
USA feeds		3749/1401R	4?	?	26(.400)
NSS-5/177W	Pacific IP Data	3745/1405R	none-date	3/4	44(.995)
	IPSTAR Tests	12.691V	9+ TV	5/6	17(.600)

Receivers and Errata	
New December 2003; 24/7 "Hope Chs."	
FTA (occ sport); also try 3863, Sr6.100	
FTA-typ NTSC-occ sport, live Shuttle	
PowVu CA + FTA (ABC-A-P 'til 'early' 2005)	
was 4148Vt; some FTA	
Korean MUX, reload 12-04; new Sr	
Tests, lab May start; also 12.646H	
Testing possible data links; June 2003	
SE spot beam; was 4027LHC	
east spot; 10TV + 1 each, vertical pol.	
FTA 11.136 Tahitian beam, 11.174 west beam; 12/04	
1+ FTA , MediaGd "2"; + 10.975 weaker	
Testing Fiji region pay-TV (MDS) package (Oct '04)	
DMV/NTL early vers. occ feeds, typ ca	
DMV/NTL early vers., occ feeds, typ ca	
'DTS Direct to Sailors; audio previously FTA - gone	
DMV/NTL early vers. occ feeds, typically ca	
Nagravision CA (> Feb 1, 2005)	
Fiji-1 FTA ; rest Nagravision CA (> 1 Feb, 2005)	
DMV/NTL early vers., occ feeds, typ ca	
SCPC, mixed CA and FTA feeds	
PowVu CA; Auckland net feeds	
CA, Leitch encoded	
New PIDs Dec 03 very strong NZ, Pacific	
FTA SCPC; East Hemi Beam-Tahiti	
24/7 live NASA - West Hemi beam (difficult!)	
SCPC, mixed CA & FTA, feeds	
NBA feeds - probably CA - new Nov 2003	
PowVu CA & TBN-JCTV FTA	
16-QAM (not MPEG-2 compatible)	
Data only but useful for dish alignment, top Sr check	
FTA Tests - Taiwan TV; data coming?? (NZ beam)	

MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. AV-COMM P/L, 61-2-9939-4377.

AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.

AV-COMM R3100(A). FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.

Coship 3188C. Review SF#107. Blind search FTA rcvr, works well. Available from Satlink NZ www.satlinknz.co.nz. (ONLY KNOWN DISTRIBUTOR IN WORLD)

Divitone: "Left-handed" review SF#115; does "code key" entry. Available <http://www.satmax.ws>

eMTech eM-100B (FTA), eM-200B (FTA + Ch2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)

Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 CI. Review SF#119. www.aDigitalife.com

Humax ICR1 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.

Humax IRC1 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq (www.sciteq.com.au).

Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)

Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902

Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

INNOVIA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix Technologies, and Satmax (<http://www.satmax.ws>).

ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.

MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 61-2-9618-5777

MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777

MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.

MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738

Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.

Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)

Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced; Sept 18 (2003) "drop-dead" day; all were to have been "turned off" on that date (in fact, those with V1.13 CAMs may still be working; still does radio including CA, not TV).

Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).

Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH (below)- 222; terminated

Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review SF#51. SATECH 61-3-9553-3399.

Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)

PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).

PowTek. Blind Search Chinese sourced, field tests rate it highly. Source jason@aDigitalLife.com

Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.

SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telstar 64-6-356-2749); no longer available.

SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.

SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at tim@dmsiusa.com.

SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).

Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superceded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin

Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).

Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots; does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.

Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSeqC 1.0, 1.2 (review SF#84); does code key with additional software; Strong Technologies, # above.

UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.

UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.

UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel, limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.

UEC700/T720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.

Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teletext problems (loses TT).

"X" Digital. When modified with "aftermarket" Internet software, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

Accessories:

Aurora smart cards. MYCRYPT (Irdeto V2) cards now available (Jan 2005), Sciteq 61-8-9409-6677.

PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

PowerVu (Pacific) repair service: Cable & Sat Svcs. Darius West. 61-2-9792-1421 (Email darius@cases.net.au)

WITH THE OBSERVERS

AT PRESS DEADLINE

Tsunami fly-away raw tape feeds: As2 (100.5E), 4060H (Sr 4.167, 1/2 - APTN Sumatra), 4080H (Sr 4.167, 1/2 Sky News Sumatra); also with blind scan check As2 4049-4112Vt (typically 4.432, 7/8), up to 9 separate feeds operating.

AsiaSat 2/100.5E: "Trace TV found on 3792Vt, Sr 2.400, 3/4 with V=4193, A=4195." (Ken)

AsiaSat 3S/105.5E: "China Entertainment TV (CETV), analogue (3680H, PAL) from first day of As3S, now testing MPEG-2 at 3729Hz, Sr 13.650, 3/4; V=1210, A=1220." (BH, Taiwan) "Bluekiss moved December 9 to 3673, Sr 6.666, 3/4 but moved again December 24 to 3760H - NOW mux, Sr 26.000, 7/8." (B. Richards, SA) "Tianjin TV is now on 4046Vt, Sr 5.950, 3/4 (V=32, A=42), new service with radio Audio PID 44; both FTA." (Tanna) "Sahara Samay Bihar testing 4020Vt, FTA; Sr 27.250, 3/4, V=517, A=700." (Kelley) "3 channel Asian movie package, CA in Conax, running on 3.732Vt, Sr 6.500, 3/4." (Leonard)

AsiaSat 4/122E: "A number of here today gone tomorrow FTA/CA services keep popping up on 4020Vt (Sr 27.500, 3/4); best bet for FTA this bird is 4100Vt, Sr 27.500, 3/4 (CDM) with up to 7 channels running." (Dr Know) "Cricket feeds 3966Vt, Sr 6.111, 3/4, CA + FTA (V-308, A=256)." (Arnold) "12.430Vt, Sr 20.000, 3/4 is now functional on Australia/New Zealand beam. Two Vietnamese CA channels (Pacific TV 1 and 2) and one FTA Chinese religious channel (Da-Ai) are presently in the MCPC - more are planned." (Peter J.) (Editor's note: This is a powerful footprint, dishes as small as 45cm should work in eastern Australia.)

Intelsat 701/180E: "TV Globo International gone from 3.794RHC." (SD) "RFO Tahiti (4.086LHC) has been moved and channels expanded to 11.136V on Tahitian beam, and, 11.174V New Caledonia beam - both Sr 23.149, FEC 3/4. Vacating C-band was required by Fiji-TV's expansion to second transponder (4.095LHC)." (Dexter) "Signal on 11.174V is slightly stronger than Canal + beaming New Caledonia." (DM, NSW) "Content of these new MCPCs is sifting out but likely to include (television) RFO Tele Polynesie (Tahiti), RFO Tele Nouvelle Caledonia, RFO Tele Wallis et Futuna (an island group NE of New Caledonia), RFO Tempo Polynesie, RFO Tempo Nouvelle Caledonie, RFO Tele Reunion, plus, radios Polynesie, Nouvelle Caledonie, France International, France Information and Radio Reunion. Why this move? Perhaps a knee-jerk reaction to launch of Sky Pacific (Fiji) and a concern that French language television will take a second seat position against newly available English (+Hindi) Fiji based service. The battle lines are forming - it is a language war!" (Henry H, New Caledonia) "Loading 8 channels 11.173H labelled as

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Not found. When Zee TV upgraded their As3S CA from Conax (+ Mediaguard) V1 to V2, a large universe of Asian viewers lost the previously quasi-FTA service. Boasts that the "key" to V2 would be found were everywhere but to date the services remain "securely" CA.

TVRFO with 100% (!) on 2.3m solid, 91% of 1.2m in northern Queensland." (VK) "Loads as 100% on 90cm, programming channels 1-6 and blank 7,8." (S, Vanuatu) "11.174 very strong in Melbourne, better than 10.975 or 11.610 (Canal +), using 2.6m mesh dish with C + Ku LNBS." (Jamie) "Nickelodeon NZ, BBC have appeared on 12.648 Hz, MDS CA, V=516, A=644; also, Channel 1 and PPV option have been added." (Cindy)

NSS-5/177W: "MAC TV (Taiwan) added to 12.691H on BEST TV NZ beam (now 9 channels, Sr 17.600, 5/6) - although also reported in Queensland; this transponder is still scheduled to be a part of the Thai operated Shin Satellite Internet package before mid-year." (Chuck)

NSS-6/95E: "ABC A-P and radio Australia have terminated 12.678Vt." (Obeyon)

Optus B3/152E: "California based Assyriasat has returned to 12.525V, Sr 30.000, 2/3 within Globecast." (CS, NZ) "update: UBI Jan 7 running Serbian BN on 3 programme channels (see p. 8: T14/U, 12.640, 2)Ch 35 + 7)Ch40 + 8) Ch 41) perhaps as a taunt to the TV PLUS announcement (see p. 28, PAS8, under TV Plus). Somebody's going to be burned here - a direct confrontation!" (IF, Qld)

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady.

Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for February 15th issue: February 3 by mail or 5PM NZST February 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

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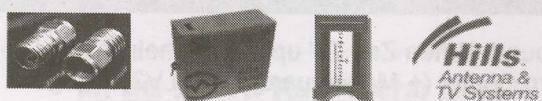
TOPFIELD

PROMAX

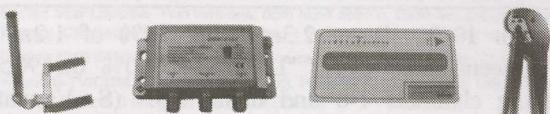
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PanAmSat PAS2/169E: "South Korean 'MUX' Sr on 3771Hz now is 6.510, 3/4; YTN in mux is FTA." (Kenny)

PanAmSat PAS8/166: "Here's an interesting mystery, indirectly involving EX-TARBS' Mike Boulos (perhaps). 12.647, Sr 28.066, 3/4 (familiar - eh?) a 10 channel MUX FTA as follows: 1) Encoder 7 (Al Jazeera, no less!), 2) Encoder 8 (religious channel, 'Norsat' on screen), 3) Encoder 9 (airing moving graphic, 'PanGlobal TV testing Rushes, London 2MBit/s'), 4) Encoder 6 (airing 'ORT'), 5) LBC Australia, 6) MBC (appears to be same as an Arabic channel currently on UBI), 7) ART (Greek, also on Foxtel), 8) Future TV (an Arabic channel also on UBI), 9) no label but airing same as #2), 10) Tele Elumiere. Now the mystery deepens. Same bird, same parameters, 12.726H, 9 FTA channels as: 1) airing a moving graphic - read the (summarised) text carefully ('TV PLUS has the exclusive license to broadcast PINKplus, BK, and BN. No other company is authorised to broadcast PINKplus, BK and BN. To subscribe contact 1800-888-088.'), 2) RTR, 3) Planet A, 4) RTVi, 5) RTViplus, 6) NTV (airing HTB Russia), 7) BK, 8) BN, 9) another channel of text, saying, 'PanGlobal testing scorpus-net-tec', whatever that may mean in Australian English! Returning to the 12.726H moving graphic, UBI has been broadcasting the three Serbian channels (PINKplus, BK and BN) on Optus B3." (IF, Qld) (Editor's note: see p. 8 here, 12.640H, channels 1), 3) and 4) so at a minimum there could be a battle here brewing as to which Australian supplier really does have legal rights to various channels.)

Telstar 18/138E: "I-Sky MUX(s) moved from 3420Vt and 3460Vt to 3460Vt and 3660Vt, Sr 30.000, 3/4. Programming is all Chinese (Mandarin, and largely Cantonese)." (SH, Taiwan) "These MUXes are in a constant state of flux, channels appear, stay a few days and are gone." (Harvey)

Soapbox: "I am interested in helping create a satellite trade association as suggested by Scratchi. Others with a similar interest please contact me. aaron@videotronics.com.au." (Aaron Pride, Qld.) "It appears pressure put on AsiaSat - the satellite operator - over the 'content' of Blue Kiss has resulted in the Adult service 'toning down' (their phrase) broadcasts. The service is all but dead in Australia where Government has identified who was selling the subscription cards and threatened them with various penalties. Sometimes all a government needs to do is 'threaten' and they get their way. And, it is certainly far less money and time consuming than actually taking somebody to court!" (Archibald) "Reference China's rapid rise to leading the electronics world, now they have developed their own 'Zhongshi No. 1' DVB-T and MPEG-2 digital processing chip. This is the first Chinese break through in this field, signalling as SF has suggested a power shift from 'western' processing chip sources to one China can call its' own. When designs like this are in full manufacture, I think the established western chip makers can kiss the Chinese business good-bye!" (Ted T.) "STMicroelectronics is preparing to ship its' new DVB-S2 demodulator, designed to allow existing satellite transponders to carry up to 30% more data (programming channels) than at present. One interesting feature - up to 8 separate L-bandwidths can be combined through LNB selection into a single downline of RG-6 with the new chip." (Gerald) "Wally Shand is back. Videosat Pty Ltd in Asquith (NSW) is selling Aurora packaged receiver, card, connectors, power

These firms are available to do contract dish installs

Fiji Islands

C.B. Communications, **Sigatoka** (Ph6520227; cbcom@connect.com.fj)

Safeway Electronics Ltd, Suva + Lautoka + all islands (Ph 3395300/6666822; safeway@connect.com.fj)

SATSHEK Communications, Suva (Ph3307933; parmarbros@connect.com.fj)

New Zealand:

Tauranga TV Svcs Ltd, western Bay of Plenty (ethnic Ku packages) (Ph 07 578 7276; dave-tts@clear.net.nz)

Raycom, Coromandel Peninsula/Waihi/Tairua (B1 FTA) (Ph 07 864 8083; raycom@slingshot.co.nz)

Frontline Electronics, Mosgiel region (ethnic Ku packages) (Ph 03 489 4001)

Advanced Aerials, Napier/Hawkes Bay, comcls (Ph06835 6618/021 272 6618; advanceaerials@xtra.co.nz)

Nelson TV & Video Svcs, all Nelson Bays (Ph 03 548 0304; ntv@tasman.net)

Rexels AV Electronics Ltd, Palmerston N, Manawatu, Hawke's Bay, Wanganui (Ph 06 357 6186; rlblair@infogen.net.nz)

John Stewart, southland including Otago (john.s@tritec.co.nz)

The Antenna Man, Taranaki (Ph 06 758 1633; antenna.man@xtra.co.nz)

Quality Pics, entire Waikato region (Ph 0800 007 667; maxnkay@xtra.co.nz)

Smartzone, Wellington-Wairarapa-Palmerston N (C+Ku) (Ph 029 289 6333; info@smartzonesystems.co.nz)

Homestead HiTech, Wellington, Masteron-Levin (PAS-2, B1, B3) fitzgera@ihug.co.nz)

Waipu Cable Television, Wellsford to North Cape (Bluekiss), (Ph 09 4320 973; waipucable@xtra.co.nz)

New South Wales:

Woolgoolaa Antenna Service, Coffs Harbour (50km radius) (Ph 0266561889; woopaerials@iprimus.com.au)

Town & Country Antennas, 60km radius Murwillumbra/Tweeds Heads (Ph 02 6672 8595)

Newcastle Satellite, Newcastle + Lwr Hunter Vly (Ph 0249614449; satellites@netcentral.com.au)

Home Satellite TV, 40km radius Port Macquarie (Ph 02 6584 3838; kazbah25@optusnet.com.au)

Goodcom Communications P/L, 100km radius of Walcha (Ph 02 6777 1044; goodcom@northnet.com.au)

Northern Territory

ALLSAT TV, Darwin and NT; (Ph 041 863 3720; allsat.tv@pacific.net.au) (*)

Queensland:

Cape York Electronics, Cooktown and "the cape" (started 1970s) (Ph 07 40 695 252; cyecltn@tpg.com.au)

Phil's Antenna Systems, 100km radius of Hervey Bay (C+Ku since 1996). (Ph 0741 256 273)

Rick Dalton TV & Satellite, 100km of Kawana Waters (C + Ku). (Ph 07 5493 4343; rick@antechtv.com.au)

Teleworks, 100km Cairns (C + Ku). (Ph 0412 84115; rajvrm@aol.com)

Videotronics Mackay, Mackay/Whitsundays radius 200km. (Ph 07 495 575 052; sales@videotronics.com.au) (*)

South Australia

Central Eyre Comms, Arno Bay-Eyre Penins. (Ph 08 8628 0203; centraleyrecomms@ozemail.com.au)

Tasmania:

.65 Electronics, Launceston and Northern Tasmania (Ph 03 63 330820; sales@65group.com)

Victoria:

Riviera Satellite Antenna Svcs, 100km radius Bairnsdale (Ph 03 5152 4884; gillhooleystv@net-tech.com.au)

Leden Communications, (100km radius) Glengarry (Ph 0427 745105; leden@netspace.net.au)

Geoff's Communications, 60km radius Korumburra (Ph 0408 582010; gwyhoon@tpg.com.au)

Foreign Satellite TVPL, Melbourne (region) C+Ku since 1995 (Ph 040445509; joe12@dodo.com.au)

Solomon Islands

Satellite Solutions, Honiara + all Solomon Islands (since 1994) (Ph 677 25589, satsol@solomon.com.sb)

Thailand:

JSAT tv/Jon Clarke, ex-pat community - nationwide (Ph +661 513 5418; info@jsat.tv)

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SatFACTS, PO Box 330, Mangonui, Far North, NZ. No, there is *no charge* to be listed but you *must* be a SatFACTS subscriber! (*) - NEW or modified this month.)

divider for A\$599 and optional with an antenna (size not described) for A\$999 + \$55 freight. A \$400 Ku antenna for Aurora???" (IF, Queensland) "Korea's semi-government operated Arirang TV (PAS-2, 12.401V, Sr 4.400, 3/4) is under pressure to locate alternate funding, or close down. This English (+ Korean) cable service channel is exported through satellite and cable and the original intent was to reach second generation Koreans living overseas (for whom the Korean language may not be a first language) and through cable connections, those interested in Korea (such as in Europe and America). Meanwhile state-run broadcaster

KBS is planning its own English language service. Arirang hopes to find a funding path to allow it to continue but the future does not look bright." (Edward T, Melbourne). "Shin Satellite's iPSTAR will launch March-April. It will have a bandwidth capacity 20 times greater than any satellite previously launched although most of what it will do (on Ku) will be directed at two-way high speed Internet." (Jacob) "Foxtel claims 75,000 new subscribers have taken up their 'free installation' offer." (KG, Sydney) "CNN Financial Network, previously on PAS-8, Telekom 1, Cakrawarta 1 has closed down." (Simon)

C1 text continues from page 22

Transponders T7, T8, T9: All vertical, 36 MHz width. Available footprints, NA and NANZ. All currently on NA. Encryption Irdeto V1, Mcrypt and NDS. These three transponders carry Foxtel Box Office (FBO) pay-per-view movie channels. Each transponder carries a single MCPC:

T7 = 12.567 (Vt), Sr 27.800, 3/4, transport stream ID: 8

T8 = 12.607 (Vt), Sr 27.800, 3/4, transport stream ID: 9

T9 = 12.647 (Vt), Sr 27.800, 3/4, transport stream ID: 10

All three transponders carry 10 (TV) channels, using the same PIDs. 4 channels on each transponder have AC3 (surround sound) running at 375 kBit/s.

TV: 1) V=4011, A=4012, AC3=4014

2) V=4021, A=4022, AC3=4024

3) V=4031, A=4032, AC3=4034

4) V=4041, A=4042, AC3=4044

5) V=4051, A=4052

6) V=4061, A=4062

7) V=4071, A=4072

8) V=4081, A=4082

9) V=4091, A=4092

10) V=4101, A=4102

T7 channels: 1) FBO1, 2) FB02, 3) FB03, 4) FB04, 5) FB13, 6) FB14, 7) FB15, 8) FB16, 9) FB17, 10) FB18

T8 channels: 1) FB05, 2) FB06, 3) FB07, 4) FB08, 5) FB19, 6) FB20, 7) FB21, 8) FB22, 9) FB23, 10) FB24

T9 channels: 1) FB09, 2) FB10, 3) FB11, 4) FB12, 5) FB25, 6) FB26, 7) FB27, 8) Adult Select 1, 9) Adult Select 2, 10) FBO Main Event (movie previews)

Currently on the 27 "FB" channels there are 13 movies airing (2 movies are time shifted on 4 channels each, 2 movies are time shifted on 3 channels each, 3 movies are time shifted on 2 channels each and 6 movies are airing on individual channels.)

Transponder T10: Centre frequency 12.709 (Vt), 36 MHz width. Available footprints NA and NANZ. Currently on NA. Encryption Irdeto V1 and Mcrypt. Until the first of February, this transponder carrying Aurora MCPC at 12.720 (Vt), Sr 30.000, 3/4 - services here being moved to T1/upper, T3 and T6 by 1 February when T10 is likely to become an additional pay-TV transponder.

Transponder T11: Centre frequency 12.296 (Hz), 72 MHz width. Available footprints NB and EA (and both together); currently on NB. Encryption Irdeto V1, Mcrypt, NDS. Currently on 12.305 (Hz), Sr 30.000, 3/4, pay-TV transport stream ID: 19. This is Austar's interactive transponder carrying Tmail, games, Austar's version of Sky News active. 37 channels load but only three are really "TV".

TV: 1) ABC (Sydney, widescreen), V=1211, A=1212, T=1216

2) SBS (Sydney, widescreen) V=1221, A=1222, T=1226

3) EXPO (infomercials) V=1231, A=1232, **FTA**

Transponder T12: Centre frequency 12.358 (Hz); 36 MHz width. Available footprints NB and EA (and both together); currently on NB. Encryption Irdeto V1, Mcrypt and NDS. On 12.368 (Hz), Sr 27.800, 3/4, pay-TV TS ID: 2. 14 channels, 13 are TV of which 3 are copies (having same PIDs as other channels), #14 is unnamed, carrying data. Teletext PIDs are likely data as well.

TV: 1) Nick (Nickelodeon) V=1011, A=1012, T=1016

2) MOVX (Movie Extra) V=1021, A=1022

3) MOVG (Movie Greats) V=1031, A=1032

4) WMOV (World Movies) V=1041, A=1042

5) Sho2 (Showtime +2 hours) V=1051, A=1052, T=1056

6) Hall (Hallmark) V=1061, A=1062, T=1066

7) Disc (Discovery) V=1071, A=1072, T=1076

8) Disney V=1081, A=1082, T=1086

9) W (Women's) V=1091, A=1092

10) Show Greats V=1101, A=1102, T=1106

11) Disn (same as #8)

12) ShwG (same as #10)

13) Nick (same as #1)

Transponder 13: Centre frequency 12.398 (Hz); 36 MHz width. Available footprints, NB and EA (and both together). Currently on NB. Encryption Irdeto V1, Mcrypt and NDS. On 12.398 (Hz), Sr 27.800, 3/4, pay-TV TS ID: 4. 15 channels, all TV, of which 5 are copies (having same PIDs as other channels). Teletext PIDs are likely data.

TV: 1) RAI (Italian) V=1011, A=1012

2) ANT (Greek) V=1021, A=1022

3) FOXN (Fox News, USA) V=1031, A=1032, T=1036

4) Blmg (Bloomberg financial) V=1041, A=1042

5) Animal Planet (USA) V=1051, A=1052

6) Weather V=1061, A=1062, + 4 data PIDs

7) FFC (AFL) V=1071, A=1072, + 1 data PID

8) FFC (AFL) V=1081, A=1082, + 1 data PID

9) CNNI (Cable News Network) V=1091, A=1092

10) Cart (Cartoon Network) V=1101, A=1102, T=1106

11) Anml (same as #5)

12) TWC (same as #6)

12) FFC (same as #8, but no data PID)

13) Weather (same as #8, unlikely to load on pay-TV IRDs)

14) FFC (same as #7 but with 3 data PIDs)

Transponder 14: Centre frequency 12.438 (Hz); 36 MHz width. Available footprint, NB only. Encryption Irdeto. Mcrypt and NDS. On 12.438 (Hz), Sr 27.800, 3/4, pay-TV TS ID: 17. 9 channels.

TV + data: 1) unnamed channel, dozens of data PIDs

2) FBOB, V=1011, A=1012

3) bars, V=1021, A=1022

4) Sky News (Australia) V=1031, A=1032

5) SKYM (Sky News Active, Foxtel version, with one video PID and video split into 8 images, plus 8 audio soundtracks. V=1041, A=1042, 1043, 1044, 1045, 1046, 1047, 1033, 1034 + 4 data PIDs

6) Help (widescreen demo of Foxtel digital), V=1051, A=1052, **FTA**

7) iEPG Video Satellite (interactive EPG skin) V=1081, A=1082 **FTA**

8) Test, V=1021, (no audio PID) +1 data PID

9) SWDL Satellite (NDS), 2 data PIDs

Transponder 15: Centre frequency 12.487 (Hz); 36 MHz width. Available footprint, NB only. Encryption Irdeto V1, Mcrypt and NDS. On 12.478 (Hz), Sr 27.800, 3/4, pay-TV TS ID: 3. 15 TV channels of which 5 are copies (having same PIDs as other channels). Teletext PIDs are likely data.

TV: 1) Fox Sports 1, V=1011, A=1012 + 1 data PID

2) Fox Sports 2, V=1021, A=1022 + 1 data PID

3) NGeo (National Geographic), V=1031, A=1032, T=1036

4) 955 (same as #13)

5) SkyR (Sky Racing) V=1051, A=1052
 6) Ovat (Ovation) V=1061, A=1062
 7) CNBC V=1071, A=1072
 8) TVSN V=1081, A=1082, **FTA**
 9) ESPN V=1091, A=1092, T=1096
 10) mainC (day = same as Main, night = Main Event logo)
 V=1101, A=1102

11) FS1 (same as #1, minus data PID)
 12) SATest (same as #2, but with 3 data PIDs)
 13) Main (day = Fashion TV; night = Adults Only)
 V=1041, A=1042

14) FS1 (same as #1, except has 3 data PIDs)
 15) FS2 (same as #2, except has 3 data PIDs)

Transponder 16: Centre frequency 12.518 (Hz), 36 MHz width. Available footprint, NB only. Encryption Irdeto V1, Mcrypt and NDS. On 12.518 (Hz), Sr 27.800, 3/4, 12 TV channels of which 2 are copies (having the same PIDs as other channels); TS ID: 15. This is the Foxtel 2-hour time delayed transponder; original channels without time delay are on Tr 17. Text PIDs are likely data.

TV: 1) TV1 +2, V=1011, A=1012, T=1016
 2) Show +2, V=1021, A=1022, T=1026, AC3=1024
 3) Comedy +2, V=1031, A=1032
 4) UKTV +2, V=1041, A=1042, T=1046
 5) Arena +2, V=1051, A=1052, T=1056
 6) Classics +2, V=1061, A=1062
 7) MOV1 +2, V=1071, A=1072, T=1076
 8) FOX8 +2, V=1081, A=1082, T=1086
 9) Lifestyle +2, V=1091, A=1092, T=1096
 10) History +2, V=1101, A=1102
 11) MOV2 (same as #7); 12) Show2, (as #2, no AC3 PID)

Transponder T17: Centre frequency 12.558 (Hz), 36 MHz width. Available footprint, NB only. Encryption Irdeto V1, Mcrypt and NDS. On 12.558 (Hz), Sr 27.800, 3/4, 15 TV channels of which 5 are copies (having the same PIDs as other channels); TS ID: 1 ("home" channel"). Text PIDs are likely data.

TV: 1) TV1 V=1011, A=1012, T=1016
 2) Show (Showtime) V=1021, A=1022, T=1026, AC4=1024
 3) Comedy V=1031, A=1032
 4) UKTV V=1041, A=1042, T=1046
 5) Arena V=1051, A=1052, T=1056
 6) FOX Classics V=1061, A=1062
 7) MOV1 V=1071, A=1072, T=1076
 8) FOX8 V=1081, A=1082, T=1086
 9) Lifestyle V=1091, A=1092, T=1096
 10) History V=1101, A=1102
 11) Cmdy (same as #3)
 12) Aren (same as #5)
 13) Clas (same as #6)
 14) Life (same as #9)
 15) Hist (same as #10)

Transponder T18: Centre frequency 12.598 (Hz), 36 MHz width. Available footprint, NB only. Encryption Irdeto V1, Mcrypt and NDS. On 12.598 (Hz), Sr 27.800, 3/4, 23 channels of which 13 are copies (having the same PIDs as other channels); TS ID: 5. Text PIDs are likely data.

TV: 1) BBC (BBC World) V=1011, A=1012
 2) TCM (Turner Classic Movies) V=1021, A=1022, T=1026
 3) Ch2 (Foxtel promo) V=1031, A=1032

4) Sky News V=1041, A=1042 + 1 data PID
 5) [V] (music TV) V=1051, A=1052
 6) FFC (AFL) V=1061, A=1062 + 1 data PID
 7) FFC (AFL) V=1071, A=1072 + 1 data PID
 8) FFC (AFL) V=1081, A=1082, + 1 data PID
 9) MTV V=1091, A=1092, T=1096 + 2 data PIDs

10) Max (Music TV) V=1101, A=1102
 11) Ch 7 (same as #3)
 12) Ch 9 (same as #3)
 13) Ch 10 (same as #3)
 14) Ch 13 (same as #3)
 15) Ch 47 (same as #3)
 16) Ch 48 (same as #3)
 17) Ch 41 (same as #3)
 18) MTVp (same as #9)
 19) SKYN (same as #4, except has 3 data PIDs)
 20) SKYN (same as #4, except no data PID)
 21) FFC (same as #8, except has 3 data PIDs)
 22) FFC (same as #7, except has 3 data PIDs)
 23) FFC (same as #6, except has 3 data PIDs)

Transponder 19: Centre frequency 12.638 (Hz), 36 MHz width. Available footprint, NB only. Encryption Irdeto V1, Mcrypt and NDS. On 12.638 (Hz), Sr 27.800, 3/4, 47 channels (16 TV of which 6 are copies; same PIDs as other channels) with 30 radio and an unnamed channel carrying data. TS ID: 5.

TV: 1) Club V=1011, A=1012
 2) FBO Preview, V=1021, A=1022
 3) A1 (Adventure 1) V=1031, A=1032
 4) Euro (EuroSportNews) V=1041, A=1042
 5) Disc Health (Discovery Health) V=1051, A=1052
 6) Country Music V=1061, A=1062
 7) FTV (Fashion TV) V=1071, A=1072
 8) DIGI (split promo+ FFC listings) V=1081, A=1082
 9) encoder 9 V=1091, A=1092 (PIDs show CA activity)
 10) Hlth (same as #5)
 11) CMC (same as #6)
 12) ABC (colour bars; CA) V=1131, no audio PID
 13) Channel 7 (same as #12)
 14) Channel 9 (same as #12, except has 6 data PIDs)
 15) Channel 10 (same as #12)
 16) Box (same as #2, except has 3 data PIDs)

Radio: (All 30 radio channels have the label "air", names to follow from their EPGs)

1) Hits (A=502), 2) Radio 2 (A=512), 3) Pop (A=522), 4) Groove (A=532), 5) Rock (A=542), 6) Jukebox (A=552), 7) New Wave (A=562), 8) Home Grown (A=572), 9) Urban (A=582), 10) Dance (A=592), 11) Anthem (A=602), 12) Soul (A=612), 13) Easy (A=622), 14) Lounge (A=632), 15) Cafe (A=642), 16) Spa (A=652), 17) Blues (A=662), 18) Light Classical (A=672), 19) Soundtracks (A=682), 20) Crooners (A=692), 21) Today's Country (A=702), 22) Classic Country (A=712), 23) BBC World Service (A=722), 24) Special Events (A=732), 25) Edge (A=742), 26) 70s (A=752), 27) 80s (A=762), 28) alt-rock (A=772), 29) Classic R&B (A=782), 30) News & More (A=792)

Transponder 20: Centre frequency 12.700 (Hz), 72 MHz width. Available footprint, NB only. Encryption Irdeto V1, Mcrypt and NDS. On 12.688 (Hz), Sr 27.800, 3/4, 15 TV channels (4 are copies - same PIDs); TS ID: 7. Text PIDs are likely data.

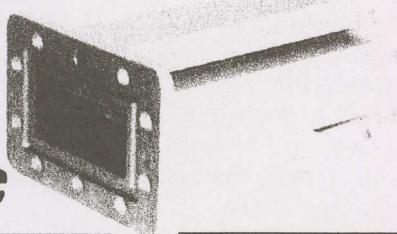
TV: 1) Biog (Biography) V=1011, A=1012

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- 2) E! V=1021, A=1022, T=1026
- 3) How to V=1031, A=1032, T=1036
- 4) Fuel V=1041, A=1042
- 5) VH1 V=1051, A=1052
- 6) Food V=1061, A=1062
- 7) Nick Jr V=1071, A=1072
- 8) Disc Science V=1081, A=1082
- 9) CI (replaced Tech TV) V=1091, A=1092
- 10) Disc Travel V=1101, A=1102
- 11) Boom (Boomerang) V=1111, A=1112
- 12) How (same as # 3)
- 13) Njnr (same as #7)
- 14) Sci (same as #8)
- 15) Trvl (same as #10)

Transponders T21/T22/T23 and T24: These four transponders, each 72 MHz bandwidth, are boresighted on SE Asia (with a side spot on Hawaii). There are no indications these have been tested or if they have, not for very long a period of time. Centre frequencies are: T21- 12.458Hz, T22- 12.538Hz, T23- 12.618Hz and T24- 12.700Hz.

Research by IF, Queensland January 2005

Pacific Area Service Packages:

Full region: Fiji TV's Sky Pacific, C - band, high power spot beam, I701 at 180E. 4055 and 4095 Left Hand Circular (Sr 16.505 - NOT 16.500 as reported elsewhere!), 3/4. On 4.055, Fiji-1 24/7 FTA + 5 CA; on 4.095 6 CA (English, Hindi). Contact tpatel@fijitv.com.fj.

Tahiti only: Tahiti Nui Satellite, I701, 180E, eastern Ku spot beam, 11.514Hz (French, English).

New Caledonia, mid-Pacific, Wallis-Futuna, eastern Australia (not NZ): Canal + (New Caledonie), I701 at 180E, Ku spot beam, 10.975Hz and 11.610Hz (Sr 30.000, 3/4), 14+ TV, radio (French, English). Contact abonnement@canal-caledonie.com.

New Caledonia, mid-Pacific (including Fiji -90cm), Wallis-Futuna, Eastern Australia (not NZ): PBS

(Pacific Broadcasting Service - ex TARBS), I701 at 180E, Ku spot beam, 12.648Hz (Sr 28.066, 3/4), 9TV + 2 radio (English, Hindi) . Contact info@pacificbroadcastingservices.com.

New Caledonia, mid-Pacific, Wallis-Futuna, Eastern Australia (not NZ): RFOTV, I701 180E: 11.136Hz for Tahiti, 11.174Hz for western areas, Sr 23.149, 3/4, 6 TV + 3+ radio (French), FTA.

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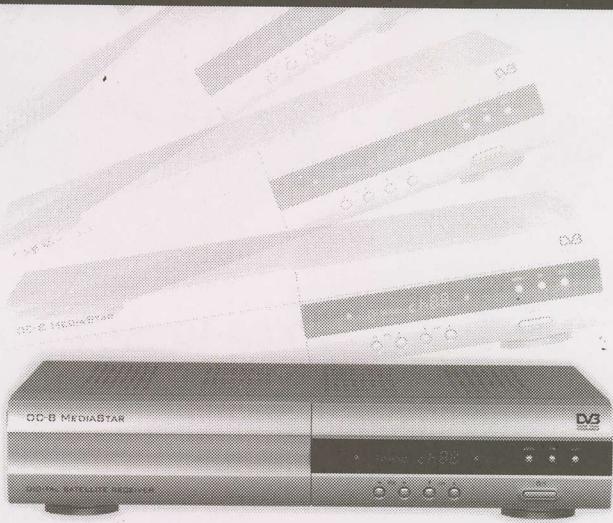
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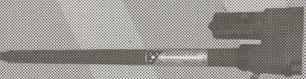


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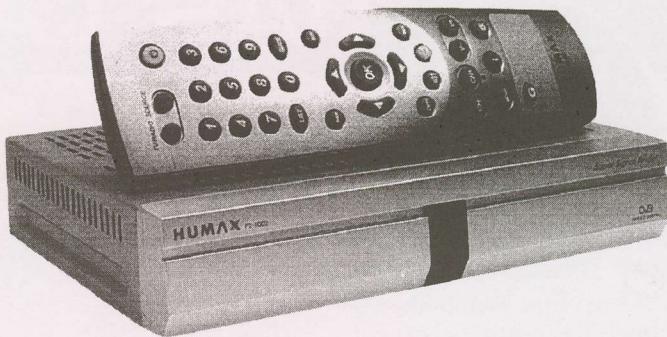
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